The RUBBER AGE

VOL. 25, No. 6 JUNE 25, 1929

Late News of the Rubber Industry

Fred M. Harpham Is Elected Vice-President of Goodyear

FRED M. HARPHAM, president and treasurer of Akers & Harpham, prominent Akron contracting and roofing concern, has been named to succeed Clifford F. Stone as vice-president of the Goodyear Tire & Rubber Company. Mr. Stone announced his resignation from Goodyear on June 6 to take a position with a large public utility corporation.

Mr. Harpham, once a member of the Goodyear Tire & Rubber Company directorate, is now a director of its subsidiary, the Goodyear-Zeppelin Corporation. Born in Akron, he has lived in that city all his life and was formerly a president of the Akron Chamber of Commerce. He handled the Community Chest fund in 1928, started the present Municipal Research Bureau, and has long been identified with Akron's civic projects.

The new vice-president came into the Goodyear organization as a director for the common stockholders in 1923 and resigned last year. He has been a member of the Goodyear-Zeppelin Corporation board of directors since the organization of that subsidiary. The firm of Akers & Harpham was organized about 10 years ago and is a leader in its field.

Clifford F. Stone, one of the Dillon, Read & Company men who came to Goodyear in the 1921 reorganization, has been a vice-president for two years. Born in Wisconsin, he was graduated in law from George Washington University and engaged in corporation practice with a Milwaukee financial group having steel, coke, chemical and mining interests. His first position with Goodyear was that of assistant secretary and general counsel, but in 1923 he went to New York with E. G. Wilmer as an assistant to the chairman of the board.

He will become associated with the Central States Electric Corporation, a firm organized in 1912, which has extensive investments in public utility holdings and operating companies in the central part of the country, as well as being interested in finance investment and industrial holdings. The organization has its principal offices in the east, and Mr. Stone will probably have headquarters in New York City.

"Mr Stone," stated P. W. Litchfield, president of Goodyear, in announcing his resignation, "has served Goodyear in various capacities for the past eight years and as vice-president since 1926, and it is with regret that I report his intention to leave the company." The Akron Times-Press, in commenting on the resignation, declares, "While it was accepted as a promotion for Stone in most quarters, others close to the Akron rubber situation viewed the resignation as a gradual restoration of Goodyear's control to local atmosphere. The resignation in some minds is believed to be the gradual trend of taking the Dillon control out of the world's largest rubber plant."

Two of the last members of the Dillon firm to leave Goodyear were Patrick J. Hart, treasurer, and Frank Espenhain, vice-president. Charles Stillman, another vice-president, one of the members of the Dillon company who assumed control in 1921, remains with Goodyear.

American Rubber Consumption Reached 49,233 Tons in May

THE rubber manufacturing industry in the United States established a record monthly consumption figure for the third time this year, according to the Rubber Manufacturers' Association, Inc., which reports that 49,233 long tons of crude rubber were absorbed during the month of May. This figure compares with a consumption of 47,521 tons during April, the previous peak month, 44,730 tons in March, and 37,333 tons in May, 1928.

The total absorption of crude rubber by domestic factories during the first five months of 1929, according to the Rubber Manufacturers' Association monthly estimates, has been 226,080 tons, as against only 173,898 tons for the months of January to May, 1928. Should this high rate be maintained through the year, it would result in a 1929 American consumption of approximately 542,600 tons.

Such a huge absorption is not expected, however, with automobile factories slackening down their schedules and tire plants about to follow suit. June consumption will probably show some recession from the peak set last month, and a definite decline in rubber factory production will continue through the summer and fall months. THE RUBBER AGE has estimated the total consumption of crude rubber in the United States during 1929 at 485,000 tons, and this would mean an average monthly consumption from June to December of slightly under 37,000 tons. Inasmuch as the average monthly consumption for the first five months of the year has been in excess of 45,200 tons, this figure for the remainder of the year may even be exceeded.

While stocks afloat to the United States at the end of May are only 5 tons less than at the end of April, stocks

on hand in this country have dropped sharply from 107,659 tons, as of April 30, to 97,192 tons, as of May 31. Since imports are believed to have been only slightly under consumption during May, most trade authorities are at a loss to explain this sudden drop of more than 10,000 tons in American stocks.

Fidelity Tire & Rubber Buys American Tire Firm

THE Fidelity Tire & Rubber Company, Akron, O., has taken over the manufacturing and selling end of the business of the American Tire & Rubber Corporation, Akron, O., according to an announcement made on June 5.

The American Tire & Rubber Corporation was incorporated on November 2, 1928, to take over the business of the American Rubber & Tire Company, which went through bankruptcy last year. The original company was organized in 1911 and during the past several years there have been many attempts to refinance. On August 8, 1928, stockholders of the old company filed a voluntary petition in bankruptcy in the Federal Court at Cleveland. The petition was referred to Harry L. Snyder, referee in bankruptcy, who named Frank Burch, Akron attorney, as receiver.

At that time liabilities of $800,000 were shown in the petition, with assets of $250,000, represented mostly by land and buildings. The liabilities included $470,000 of bonded debt and $40,000 unpaid interest. Floyd C. Snyder, president of the company, held 90 per cent of the bonded and unsecured debt.

The reorganization plans of last November called for the issuance of 5,000 shares of stock of no par value. Mr. Snyder continued as president and treasurer, E. L. Schmock as vice-president and R. C. Myers as secretary. It was stated at the time that the plants of the company were in operation and producing an average of 500 tires a day. The company has been making American-Akron, American-Ace and Wearever tires and tubes.

The Fidelity Tire & Rubber Company has shown a consistent growth since 1926, when a group of Chicago business men, headed by Edward M. Bertha, who became president, took over the organization. Earnings have shown a steady increase since that time, and the company reported for 1928 a net income of $84,314 after depreciation, interest and federal taxes, as against a 1927 income of $72,087 after depreciation but before interest and federal taxes. Mr. Bertha recently stated that company officials expected 1929 profit to exceed that of last year considerably.

An issue of $300,000 7 per cent cumulative preferred stock was privately placed in recent months by Paul H. Davis & Company. This stock carried with it common stock, share for share, and the right of conversion into common at the rate of four shares of the latter for each share of preferred. In addition to the preferred shares, the capital account consists of $250,000 first mortgage bonds and approximately 30,000 shares of $5 par value common stock. The common stock is traded in on the Chicago Stock Exchange.

Manufacturing Chemists Elect Lammot du Pont as President

LAMMOT DUPONT, president of E. I. duPont de Nemours & Company and chairman of the board of the General Motors Corporation, was elected president of the Manufacturing Chemists' Association of the United States at its meeting at Wilmington, Del., on June 6. More than 100 of the most important executives of the chemical industry in the country attended the meeting and the annual outing of the Synthetic Organic Chemical Manufacturing Association, which was held in conjunction with the meeting.

Other officers elected were: vice-presidents, William B. Bell, president of the American Cyanamid Company, and W. D. Huntington, president of the Davison Chemical Company; treasurer, Philip Schleussner, vice-president of the Roessler & Hasslacher Chemical Company; secretary, John I. Tierney of Washington, D. C. S. W. Wilder of the Merrimac Chemical Company was chosen as chairman of the executive committee, whose members include William H. Bower, Henry Bower Chemical Manufacturing Company; C. W. Millard, General Chemical Company; H. L. Derby, president of the Kalbfleisch Corporation; George W. Merck, Merck & Company; and J. A. Rafferty, vice-president of the Carbide & Carbon Chemical Company.

The principal address at the session was made by Virgil Jordan, chief economist of the National Industrial Conference Board, who predicted a slackening of business in the last half of the present year.

Lee Rubber & Tire Corporation Earns $227,270 in Six Months

THE Lee Rubber & Tire Corporation and subsidiaries have reported for the six months ended April 30, 1929, a net profit of $227,270 after depreciation, interest, etc., equivalent to 76 cents a share earned on the 300,000 shares of no-par stock. This compares with $91,148 after depreciation, interest, reserve for rebates, etc., or 31 cents a share on 293,261 shares in the same period of the previous year.

This half-year profit of the Lee corporation exceeded its earnings for the entire previous fiscal year. During the twelve months ended October 31, 1928, the corporation and its subsidiaries earned only $165,764 after depreciation, interest and other charges, equivalent to 55 cents a share on the 300,000 common shares. In the ten months ended October 31, 1927, however, the Lee report showed earnings of $784,257, although this included $160,003 profit from the sale of securities of non-affiliated companies. In the year ended December 31, 1926, there was a deficit of $1,670,068.

The sales total for the six months ended April 30, 1929, was lower than during the corresponding period of the previous fiscal year, due to reductions in unit prices. Net sales for the half-year just reported totaled $4,868,479, as against $5,244,722 during the six months ended April 30, 1928.

Lee has equipped its plants at Conshohocken, Pa., and Youngstown, O., with the most up-to-date machinery, purchases of new equipment last year alone amounting to $126,310. The company's tire and tube business accounts for about three-quarters of its entire business, the remaining one-quarter being the manufacture of mechanical rubber goods at the Youngstown factory of its subsidiary, the Republic Rubber Company.

President John J. Watson, in a statement to stockholders early this year, declared, "Our volume of unit sales has increased during the year and we have met with an increasing demand for our products. The demand is most gratifying and shows promise for a continuously increasing business. Present indications are that the result of operations for the coming year should be satisfactory." Among the factors lending encouragement to the 1929 outlook are the recently concluded three-year bus equipment contract with the Pennsylvania-Ohio Power & Light Company, involving an expenditure of upwards of $500,000, and the agreement with the Warner-Quinlan Company whereby Lee tires will be sold exclusively at all that firm's service stations.

through the states of New York and New Jersey.

The common stock of the company has sold on the New York Stock Exchange this year between $10 and $25 a share and is currently quoted in the neighborhood of $17. Consolidated income account for the six months ended April 30, 1929, compares as follows with the corresponding period a year ago:

	1929	1928
Net sales	$4,868,479	$5,244,722
Expenses, depreciation, etc.	4,630,934	*5,158,512
Operating profit	$237,545	$86,210
Other income	50,075	68,429
Profit	$287,620	$154,639
Interest	60,350	63,421
Net profit	$227,270	$91,148

*Includes reserve for rebates.

Rubber Firm Purchasing Agents Gather at National Convention

PURCHASING agents of rubber companies took a prominent part in the proceedings of the annual convention of the National Association of Purchasing Agents held at the Hotel Statler, Buffalo, N. Y., on June 3 to 6, inclusive.

C. F. Marshall, purchasing agent of the Seiberling Rubber Company, as chairman of the educational committee of the National, conducted the general session on June 4 on "Educational Courses in Purchasing." Ralph D. Berry, purchasing agent of the Davol Rubber Company, Providence, R. I., was elected national vice-president from his district. At the annual banquet held on Wednesday evening, June 5, all of the rubber buyers were seated at a special table. There is a movement on foot to have a rubber group formed during the coming year to operate in a manner similar to the textile and other industry groups of the association.

Richard T. Harriss, past president of the New York Cotton Exchange, in an address on June 4, explained the hedging of rubber purchases and the protection it affords.

"I feel that no better illustration could be offered of the value of commodity futures as a hedge against adverse price fluctuations of the raw commodity, than might be offered by that of the tire manufacturer," he stated.

"We all know that the inventory losses which rubber manufacturers were forced to take in 1920 and 1921, incident to the enormous decline in the value of raw rubber, were little short of appalling. Yet today, through the medium of the Rubber Exchange of New York, the tire manufacturer can insure himself against a repetition of the disastrous losses which eventuated in 1920 and 1921 by selling rubber futures against his purchases of raw rubber, and liquidating these contracts as he sells his products."

The following rubber company buyers were registered: R. D. Berry, Davol Rubber Company, Providence, R. I.; R. D. Chittenden, Goodyear Tire & Rubber Company, Akron, Ohio; H. G. Dusch, Goodall Rubber Company, Philadelphia, Pa.; J. A. Fraser, Gutta Percha Rubber Company, Toronto, Canada; C. M. French, Philadelphia Rubber Works Company, Oaks, Pa.; A. E. Gardner, Mishawaka Rubber & Woolen Company, Mishawaka, Ind.; E. G. Hammock, Philadelphia Rubber Works Company, Akron, O.; H. A. Johnson, United States Rubber Company, New York; R. C. Kelley, Converse Rubber Company, Malden, Mass.; John E. Maier, Dunlop Tire & Rubber Company, Buffalo, N. Y.; C. F. Marshall, Seiberling Rubber Company, Akron, O.; E. B. Ross, Dunlop Tire & Rubber Goods Company, Toronto, Canada; R. H. Sanford, Kaufman Rubber Company, Kitchener, Ontario; C. L. Sheldon, Hood Rubber Company, Watertown, Mass.; B. C. Swinehart, Hewitt Gutta Percha Rubber Company, Buffalo, N. Y., and J. Van Valkenburgh, Dunlop Tire & Rubber Company, Buffalo, N. Y.

Goodyear Opens Gadsden Plant; Expands Fabric Mill Operations

THE first shipment of crude rubber has arrived at the new Gadsden, Ala., tire and tube factory of the Goodyear Tire & Rubber Company, ready for the formal opening of the plant next month. The exact date for the actual start of operations has not as yet been announced, but it will take place in the near future and will be attended by appropriate ceremonies.

R. STEWART

Crude rubber to the amount of 275 long tons was shipped from New York on the *City of Birmingham* by way of Savannah, Ga. From Savannah the rubber was sent to Gadsden by special train, requiring 15 cars to transport the shipment from the Georgia city to the new factory.

Rapid progress is also being made on the Rockmart, Ga., textile mill, now being constructed by the Goodyear Tire & Rubber Company. This mill and the Atco, Ga., fabric mill constitute the latest units of Southern development in the Goodyear expansion program. Goodyear now owns mill properties in Georgia valued at close to $15,000,000 and expects to increase the capacity of these plants to nearly 1,000,000 pounds of tire fabric a year.

Robert Stewart will be superintendent of the Goodyear Clearwater Cotton Mill No. 2, now under construction at Rockmart, according to a recent announcement by the company. He has been assistant manager of Goodyear Devon Mills at New Bedford, Mass. Mr. Stewart was born at Woonsocket, R. I., and is a graduate of Tufts College. For six years he was overseer of carding for S. Slater & Sons, Webster, Mass., resigning that position to become assistant superintendent at Devon Mills.

New Samson Tire Factory Starts Operation July 15

THE new $8,000,000 plant of the Samson Tire & Rubber Company at Los Angeles, Calif., is nearing completion and will be ready in time to start actual production by July 15. Construction progressed ahead of schedule, the placing of brick and ornamental concrete around the steel framework being completed much sooner than had been expected. The first installation of machinery in the main building was started early last month.

Before the end of May, steel for the boiler house unit and the tall stack were in place, together with an elaborate network of spur railroad tracks. Work on the machine shop, which is also of steel and stone construction, is practically finished, and the paving of the grounds with a special non-skid pavement is progressing.

When completed, the new factory will employ 2,500 workers and will turn out 6,000 tires and 10,000 tubes daily. The company is to begin milling operations in the new

plant first and then will occupy the various departments as rapidly as possible with full production scheduled for October. Both the San Diego plant and the Compton plant will be kept in operation until the output can catch up with unfilled orders or until such a time that the new factory can supply complete orders.

Sales of the Samson Tire & Rubber Company for the first quarter of 1929 totaled $1,990,509 as compared with $1,523,633 for the corresponding period of 1928, an increase of 30 per cent, according to A. Schleicher, president of the company. Despite reports that Samson will start paying dividends at the rate of $1.25 a share on the common stock about July 1, Mr. Schleicher states that directors of the company have not given any official consideration to the inauguration of such disbursements. The company's earnings are estimated at approximately $3.50 per share annually after all charges, including taxes and depreciation.

Standardization is Approved For Industrial Truck Tires

A SIMPLIFIED schedule for industrial truck tires, reducing the varieties now produced to a stipulated number of standard sizes, was approved at a meeting in Washington, D. C., on June 6 of manufacturers, distributors and users. The conference was held under the auspices of the Division of Simplified Practice of the Bureau of Standards.

Possibilities for the development of this simplification program have been studied for some time by the committee on standardization of industrial tires of the Tire and Rim Association, Inc. This program, covering standard dimensions and tolerances for wheels and tires, has been approved by the membership of that organization.

A report of the June 6 conference, with an acceptance blank, will be sent to manufacturers, distributors and representative users of industrial truck tires. When signed acceptances have been received, representing not less than 80 per cent of the volume of production, and a satisfactory distributor and support, the simplified practice recommendation will be published by the United States Department of Commerce.

The recommendation will become effective on September 1, 1929. One year from that date, and annually thereafter, the recommendation will be reviewed by a standing committee which was appointed at the conference and either reaffirmed or modified to meet changed conditions in the industry. Members of the standing committee are B. J. Lemon, Henry F. Schippel and E. F. Brunner, representing tire manufacturers; C. B. Crockett, L. J. Klein and C. E. Cochran, representing truck manufacturers, and one member to be appointed later to represent users.

Commenting on the simplified practice program, R. L. Lockwood of the Division of Simplified Practice said that the establishment of a relatively small number of standard or stock sizes will not only benefit the manufacturers of these tires, but will also be of great assistance to all distributors and users. Demand will be concentrated upon the standard sizes, thereby promoting reduction of stocks, faster turnover and better service to all concerned. Sizes produced and sold in large quantities will no longer have to absorb a part of the excessive costs of manufacturing, handling and distributing sizes for which demand is small or irregular.

Those present at the Washington conference included A. A. Robb, B. F. Goodrich Company, Akron, O.; Anson M. Keller, Firestone Tire & Rubber Company, Akron, O.; C. E. Bonnett, Tire and Rim Association, Inc., Cleveland, O.; B. J. Lemon, United States Rubber Company, Detroit, Mich.; Charles Schroeder, Yale & Towne Manufacturing Company, Stamford, Conn.; K. F. Sheeran, Railway Purchases and Stores, Chicago, Ill.; W. S. Kidder, Firestone Tire & Rubber Company, Akron, O.; E. F. Brunner, Goodyear Tire & Rubber Company, Akron, O.; A. M. Barrett, Barrett-Cravens Company, Chicago, Ill.; J. F. Stanton, Steubing-Cowan Company, Cincinnati, O.; Major Robert W. Voeth, chief co-ordinator's office, Washington, D. C.; J. W. Carroll, Fisk Rubber Company, Chicopee Falls, Mass.; H. W. Newman, W. L. Holt and E. G. Holt, Department of Commerce; H. W. Jacobsen, Fisk Rubber Company, Chicopee Falls, Mass.; Bernard E. Walls, B. F. Goodrich Company, Washington, D. C.; Jack McCarthy, Fisk Rubber Company, Washington, D. C.; A. W. Shaffer, New York Central Railroad; and H. E. Stocker, McCormick Steamship Company, New York City.

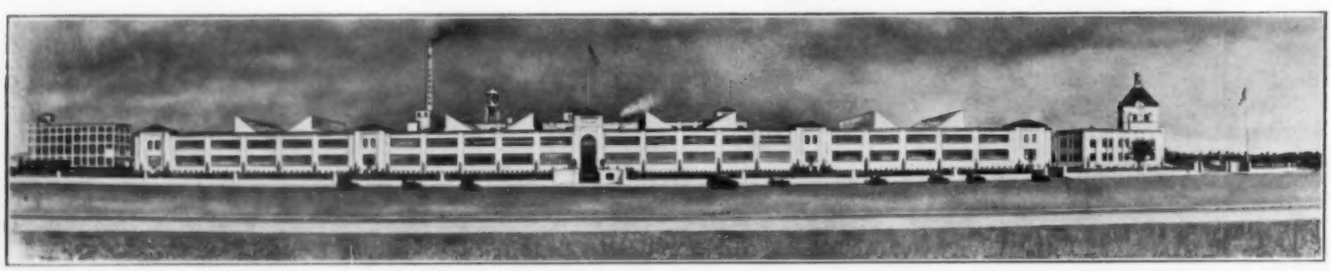
Record Business is Reported by Motor and Equipment Association

MANUFACTURERS of automotive parts, accessories and repair equipment closed April and the four months period at the highest level on record. There has been practically no evidence of any slowing up in May, and though some seasonal recession will undoubtedly make its appearance in June, the decline will start from such a high level that the first half period will be well in excess of previous years, according to the Motor and Equipment Association, which includes several rubber manufacturers and wholesalers in its membership.

Aggregate shipments in April of parts, accessories and garage equipment manufacturers in the association to both vehicle makers and the wholesale trade reached an index figure of 254 per cent of the January, 1925, base index of 100, as compared with 241 in March, 214 in February, and 195 in April last year.

The association has just issued to its members an 18-page survey of the super-service station market, prepared by the sales development department of the organization. This survey includes photographs of super-service stations, building and equipment layout plans for stations, and lists of suggested shop equipment for most usual super-service station departments. The trend toward "one stop" stations is emphasized, and such information is given as is necessary in presenting the super-service story to retailers.

Firestone Los Angeles Factory as It Will Appear With New Additions



Late Developments *in* Mechanical Goods Manufacture

The Steady Development of the National Resources and the Increase in Industrial Activities Has Enormously Enlarged the Field for Mechanical Goods—Industry Has Kept Pace With Progress

THE manufacture of mechanical rubber goods, which includes conveyor and transmission belting, hose of all kinds such as garden hose, steam hose, braided hose, fire hose, etc., packing, moulded washers, gaskets, fittings, jar rings, covers for rubber rolls, mats, and friction tape, is one of the oldest branches of the rubber industry. Its growth has been steady and marked by a stability not enjoyed by the other branches of the industry.

In the last few years the automobile has contributed more business to the mechanical rubber goods manufacturers. One has only to mention such items as fan belts, radiator hose, floor and running board mats, windshield wipers, window stripping, and rubber shock insulations of various types to realize this. With the growth of industry mechanical rubber goods have kept pace, for the establishment of every new manufacturing plant means belting of some sort and usually hose will be required. The development of our great natural resources such as petroleum and mining of ores and coal have opened the way for larger consumption of hose and transmission and conveyor belt. Yet the general public probably knows less of this branch of the rubber industry because its contact with it is remote; every car owner has a direct interest in a tire; almost every American uses rubber footwear of some sort; but the average man's contact with a conveyor belt is practically nil. Thus mechanical rubber products find their utility either as a part of other manufactured products or as aids to production, and for this reason are not so dependent on the pulse of consumer demand.

Successful Use of Reclaimed Rubber

The mechanical rubber goods factory in common with all rubber manufacturing plants has the basic mill, mixing, and calender departments which are common to all. The nature of the compounds used are such that they lend themselves readily to the use of internal mixers, and many of them will be found in mechanical plants. Probably no branch of the industry has been so successful in the use of reclaimed rubber, and many companies have found the volume large enough to pay for the installation of their own reclaiming units.

Calenders are largely used for frictioning either hose or belting duck and are hooked up with fabric dryers, as good penetration of the friction is necessary, particularly in the case of belting duck. In the rubber belt adhesion of the plies is quite as important as it is in the tire and the test in service equally severe. Proper handling of the rolls of frictioned stock from the calender to the making-up departments is one of the first requisites of economical operation, for fabrics which become wrinkled, crushed, or stuck to the liner eventually falls out as waste. The use of treated liners, such as the "Blue processed," is a great help in the proper handling of these stocks. Many mills find it to advantage to hang the rolls horizontally in racks to which they are conveyed on overhead conveyors, but vertical storage on the floor has proved satisfactory if racks are built to hold the rolls upright.

A typical belt making machine comprises several sections mounted on cast iron legs. The first section of a plain wood surface table over which the flat belt stock is drawn under smoothing rolls past adjustable grooved wheels which fold the material over to make the desired width. At the end of the folding table is a pair of adjustable pressing rolls for consolidating the folded plies. Above the pressing rolls are mounted reels for carrying rubber cord and seam strip rubber for finishing the joint in the belt cover. Beyond the first presser rolls is a second pair which serves to both press and pull the belt which descends from these rolls into a soapstone box with a turning roller in the bottom and from which it emerges through a pair of circular brushing rolls for removal of the excess of soapstone. The final attachment of the machine is the wind-up for reeling the finished belt ready for curing.

Belts Cured Continuously in Sections

Curing the belt is accomplished in the belting press, which is constructed with a series of hydraulic rams and a single platen thirty feet or more in length. Thus the belt is cured continuously in sections. Large conveyor belts require special hoisting apparatus as they frequently weigh five tons or more. It follows that the purchaser of a conveyor belt is not buying just a piece of belting but making a sizeable equipment investment in which the service and life of the belt, not price, is the factor of importance. Realizing this, it is a tribute to the mechanical rubber goods manufacturers for a purchasing agent to say, as one recently did in reference to conveyor belting, "Manufacture is one thing over which the buyer or operator has no control. Manufacturing has never been on a better and sounder footing than it is today. Standardized grades are quite uniform in quality and construction. Straight ply and step-ply construction are recognized standards of the industry. Hybrid and what may be called trick constructions should not be countenanced. Constant improvements in belt construction methods and the improvement in duck frictions, quality and tensile strength of rubber compounds, are in no small way contributing to the natural increases in belt life."

Several companies are now putting out a new type of transmission belting which is made in wide sections and then slit into narrow width belts, leaving a raw selvage. Each selvage is protected with a heavy coat of high quality

self-curing cement to prevent moisture seeping in between the plies. This belt has far greater flexibility than the folded edge belt and opens the field of rubber belting into more competition with leather belt on small transmissions where greater flexibility is desired. Another new type of rubber transmission belt carries a rubber ribbed cover on the transmission side with the purpose of obtaining greater gripping power. This idea is not new, having been tried out years ago, but in those days rubber compounding had not reached the point it has today and difficulty was experienced in making a rubber cover which would stand up.

The manufacture of rubber hose is performed by various methods each suited to the type of hose desired. Hose for all purposes has been made generally in 50-foot sections, as this length is considered standard and all equipment for hose making and curing is planned for that length product, whether the hose is built with frictioned duck plies or is rubber lined circular woven fire hose. Molded garden or small water hose was developed to produce small hose in continuous lengths of 500 feet, because of the commercial advantages afforded by reeled hose of that length, which can be cut and coupled as desired. This is moulded in a sheath of lead, which has proved most practical for this type of hose.

Molded Hose in 500 Foot Lengths

The familiar rubber and fabric garden hose has always been made and vulcanized on steel poles 50 feet long, its construction consisting of a rubber lining wrapped with several plies of frictioned duck, over which is added a covering of tough sheet rubber. The hose is vulcanized in open steam, buried in talc. Molded garden hose in contrast to fabric garden hose is made in lengths of 500 feet and is produced almost continuously by use of conveyors and the tubing machine. After being wound in 500-foot reels from the tuber, the hose passes through the braiding machine which encases it in a web of braided yarn over which is laid strips of calendered rubber to insure adhesion between the plies. After another layer of cotton braid is applied, the hose is coiled into a metal can for delivery to a second tuber for the application of the outer rubber cover. The hose is now ready for the lead cover which is applied by an electric melting furnace and a heavy hydraulic press. The hose is then vulcanized on reels in an ordinary open steam vulcanizer, and the lead covering stripped off. While wrapped hose is generally considered of better quality than molded hose, the latter product affords a better appearance and for low pressure work is quite satisfactory.

Importance of Tubing Machine

The tubing machine is a very important unit in a mechanical rubber goods plant, and the field of extruded rubber products has been considerably extended by its use. Such automoblie parts as window stripping, tubing for windshield wipers, windshield strips, are made very efficiently on a tubing machine, the shape being fashioned by a die in the tuber head, the stock run into circular pans vulcanized in open steam, and cut and mitered to the lengths required.

Rubber tiling, which is a comparatively new rubber product, has been largely the game of the specialist with large powerful hydraulic equipment and special moulds. One mechanical goods manufacturer, however, has been making a very successful product in the belting press without mould equipment. The stock is calendered in sheets and cut into blocks and shapes by die. The parts are then cemented on one side and built into the design required, cementing them to a fabric base. The operation is much like the putting together of a picture puzzle. The sheets are then placed in the belting press and vulcanized into beautiful and durable floor coverings.

Hydraulic presses are utilized by the mechanical goods manufacturer for the moulding of small parts such as gaskets, diaphragms, washers. While the moulding in itself is a simple process, preparation of the proper sized blank for some of these odd shapes requires considerable ingenuity in rubber cutting. Trimming of these parts is also an intricate operation.

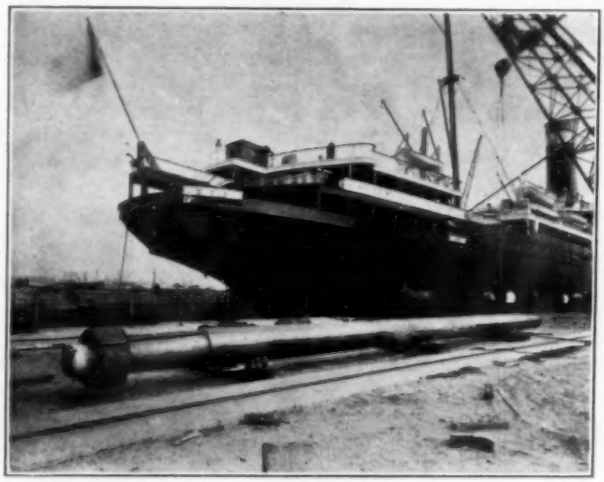
Rubber Lined Propeller Shafts

RUBBER linings in various specialized industrial machinery are becoming increasingly necessary. Although not a new development in mechanical engineering apparatus, it is only comparatively recently that any of the rubber manufacturing companies have scientifically tackled the various fields with their corps of experts.

One of the latest developments along these lines has been the installation of rubber covered sleeves on the propeller shafts of the latest type United States Navy submarines. The adoption of this rubber lined shafting is the result of months of experimentation in connection with the other vessels, notably the *Leviathan*.

This is a distinctively new departure in maritime engineering construction and promises to open a wide field for rubber linings in mechanical machinery.

The accompanying photograph shows the *Leviathan* in dry dock ready to have the rubber lined propeller shafts installed. One shaft completely lined, ready to be lifted in place, is also shown in the foreground.



Propeller Shaft of *Leviathan* Ready for Installation in Rubber Lined Sleeve

Under normal conditions the life of a rubber shaft covering is figured about seven to ten years. The object of the covering is to be able to use steel shafts instead of bronze, which are more costly.

In preparation for the rubber lining, the steel shaft must be clean and free from oil, dirt, and rust and preferably sand blasted. The shaft is then coated with cement and allowed to dry. A 3/32″ thick layer of unvulcanized rubber is applied and is clamped in place with galvanized clamps, seams running elongitudely and lapped. The first layers of rubber is then coated with cement and a second layer of vulcanized rubber 3/32″ thick is applied this time without clamps and is bound or wrapped in place with sheeting. An envelope of duck is draped about the shaft and a steam line is fed into the envelope, thus curing the covering with a homogenious mass. The duck covering is removed after the curing and a smooth even rubber covering, which allows no salt water to come in contact with the steel, is the result. The shaft is then swung into place ready for service. Shaft struts have also been sucessfully lined by this same method.

Carbon Black Industry Sets New Records in 1928*

New Record Peak Was Reached in Both the Volume of Production and Sales—Louisiana Continued to Rank First With Texas a Close Second—Rubber Industry Is Chief Consumer

THE carbon black industry continued to set new high records in 1928, when new marks for both production and sales were established. The total production of carbon black in 1928, as reported to the United States Bureau of Mines, Department of Commerce, amounted to 248,790,000 pounds, an increase over 1927 of 50,361,000 pounds, or 25 per cent. Total sales for the year were 280,579,000 pounds, an increase over the previous year of 57,149,000 pounds, or 26 per cent. The production had a value at the plants of $13,782,000, an average of 5.54 cents per pound. This represents little change in average value but, because of the sizable increase in output, represents a material gain in total value over 1927.

Stocks of carbon black held by producers at their plants continued to decline and on December 31, 1928, amounted to 50,240,000 pounds, as compared with 82,831,000 pounds on hand at the beginning of the year.

As noted above, total sales by carbon black producers in 1928 amounted to 280,579,000 pounds. Of this amount, 77,903,000 pounds, or 28 per cent, were exported, leaving 202,676,000 pounds, or 72 per cent, as the domestic distribution. Of the latter amount, 140,938,000 pounds, or 70 per cent, were sold to rubber companies; 27,223,000 pounds, or 13 per cent, to ink companies; 20,040,000 pounds, or 10 per cent, to paint companies; and 14,475,000 pounds, or 7 per cent, for miscellaneous uses.

Rubber Industry is Largest Consumer

The rubber industry is by far the largest consumer of carbon black and the major portion of the increase in output in recent years has been due to a comparable growth in the number of automobile tires manufactured. During 1928 the rubber industry produced about 75,000,000 automobile casings which, with a distribution of 140,938,000 pounds of carbon black, would indicate a carbon black consumption of nearly 2 pounds per tire.

Louisiana again ranked first in the production of carbon black, with Texas second, and Wyoming third. Louisiana, with two less plants operating in 1928 than in 1927, produced 136,320,000 pounds of carbon black as compared with 124,188,000 pounds in 1927, an increase of 10 per cent. The output in Texas rose from 56,396,000 to 100,828,000 pounds, an increase of 79 per cent. Of the 1928 total for Texas, 64,927,000 pounds, or 64 per cent, were produced in the Panhandle district and 35,901,000, or 36 per cent, in the vicinity of Breckenridge. The two States of Louisiana and Texas produced 95 per cent of the total output of carbon black in 1928. The year 1928 witnessed the almost complete extinction of the carbon black industry east of the Mississippi. In 1927, the two States of Kentucky and West Virginia had 9 plants in operation, which, during the year, produced 8,465,000 pounds of carbon black; in 1928, however, the number of operating plants dropped to 3 and their output was only 1,181,000 pounds.

*Bulletin of the Bureau of Mines, Department of Commerce, Washington, D. C.

The primary statistics of the carbon black industry in 1928, compared with 1927, are as follows:

	1927	1928
Number of producers reporting	33	31
Number of plants	61	65
Quantity produced (pounds):		
Louisiana	124,188,000	136,320,000
Texas	56,396,000	100,828,000
Wyoming	6,294,000	(1)
Kentucky	5,669,000	484,000
West Virginia	2,796,000	697,000
Other States	3,186,000	10,461,000
Total	198,429,000	248,790,000
Produced by:		
Channel process (pounds)	167,357,000	220,532,000
Other processes[2] (pounds)	31,172,000	28,258,000
Stocks held by producers:		
December 31 (pounds)	82,831,000	50,240,000
Losses (pounds)	546,000	802,000
Sales (pounds):		
Domestic	168,999,000	202,676,000
Export	54,431,000	77,903,000
Value (at plant) of carbon black produced:		
Total (dollars)	10,955,000	13,782,000
Average per pound (cents)	5.52	5.54
Estimated quantity of natural gas used (M cubic feet)	144,187,000	175,157,000
Average yield per M cubic feet (pounds)	1.38	1.42

[1]Included under "Other States."
[2]Including disc, Lewis, roller, "special," and thermatomic.

Losses at the plants in 1928 amounted to 802,000 pounds. This represents an increase over 1927, considerable of which was due to the increased output. Considerable progress has been made in recent years toward reducing the amounts of carbon black which drift away with the wind, and a few recent installations have been made for which it is stated that no perceptible amounts of carbon black are lost in this manner.

The producers estimated that they burned 175,137,000,000 cubic feet of natural gas in 1928. This would indicate an average recovery of 1.42 pounds of carbon black per M cubic feet. This compares with an average recovery of 1.38 pounds in 1927. This small, yet important, increase in recovery in 1928 probably was due to improved methods.

Of the total output in 1928, 220,532,000 pounds, or 89

per cent, was produced by means of the channel process, and 28,258,000 pounds, or 11 per cent, by the thermatomic, Lewis, roller, disc, and "special" processes. This indicates a slight increase in the proportion manufactured by the channel process over a year ago.

The export trade in carbon black continued its rapid growth in 1928. Total exports for that year were 77,903,000 pounds, as compared with 54,431,000 pounds in 1927, an increase of 43 per cent. These exports were valued at $6,794,000, an average of 8.72 cents per pound. The increase in exports in 1928 was fairly evenly distributed among the various countries. The United Kingdom continued to be the leading carbon black customer of the United States, followed, in order, by France, Germany, and Canada.

Fibre Reinforced Rubber Tile

ALTHOUGH reinforced rubber floor tilings have been marketed since 1919, the Stedman Products Company, of South Braintree, Mass., have recently published a new catalogue showing many attractive installations of their fibre reinforced tile. The company has been

Colonial Room, Detroit Institute of Arts, with Mosaic floor and inlay of reinforced rubber

selling rubber tiling for the last ten years. A unique feature of their sales policy is that this company insists on making the actual installation through their own engineering staff, thus insuring proper service. A planing department prepares each detail of such installation including designing and elaborate inlay work, wainscoting and bases where desired. Color combinations and designs are almost unlimited in their variety.

In the fibre reinforced tile, new cotton fibres, short filaments almost invisible to the eye, are introduced into the rubber compound which surrounds and impregnates it, forming an inforced mass that later under vulcanizing pressure becomes a homogeneous whole.

May Rim Production Shows Decrease

OUTPUT of automobile and other rims during May fell off slightly from the high record set in April, but was still approximately 18 per cent higher than in May, 1928. During the past month the number of rims inspected and approved by the Tire & Rim Association, Inc., totaled 2,574,224 as compared with 2,729,899 in April and 2,185,592 in May of last year. The total for the first five months of 1929 stands at 12,017,743 as against 10,544,586 for the same period a year ago. The new 20 x 2.75 balloon size accounted for 30.1 per cent of the total May production.

Rim Size	May 1929 No.	%	5 Mos. 1929 No.	%
Motorcycle				
24x3 "CC"	.....	....	9038	0.1
24x3 Std.	468	0.0	4668	0.0
26x3 "CC"	.....	....	1283	0.0
26x3 Std.	1035	0.0	1035	0.0
28x3 "CC"	.....	....	1020	0.0
18x3 SS	5528	0.2	5528	0.0
19x3 SS	7039	0.3	7039	0.1
Total	14070	0.4	29611	0.2
Clincher				
30x3½	6777	0.3	119197	1.0
31x4	.....	....	.....	....
Total	6777	0.3	119197	1.0
18" Balloon				
18x4	169918	6.6	670630	5.6
18x3.25	19896	0.8	75681	0.6
18x4½	46522	1.8	181443	1.5
18x5	6097	0.2	23484	0.2
Total	242433	9.4	951238	7.9
19" Balloon				
19x2.75	48640	1.9	195879	1.6
19x3½	42022	1.6	417807	3.5
19x4	440069	17.2	2424303	20.2
19x3.25	40344	1.3	161583	1.4
19x4½	55409	2.2	288569	2.4
19x5	24079	0.9	59253	0.5
Total	650563	25.4	3547394	29.5
20" Balloon				
20x2.75	775239	30.1	3038106	25.3
20x3½	5595	0.2	62217	0.5
20x4	194515	7.6	1211399	10.1
20x4½	24933	1.0	211237	1.8
20x5	31973	1.3	217036	1.8
20x6	528	0.0	34983	0.3
20x6.75	411	0.0	12206	0.1
Total	1033194	40.1	4787184	39.9
21" Balloon				
21x2.75	11843	0.5	93620	0.8
21x3½	16657	0.6	139703	1.2
21x4	7500	0.3	35880	0.3
21x4½	4294	0.2	19489	0.2
21x5	1383	0.1	3144	0.0
21x6	.....	....	1017	0.0
Total	41677	1.6	292853	2.4
22" Balloon				
22x4	.....	....	501	0.0
22x4½	496	0.0	496	0.0
Total	496	0.0	997	0.0

Rim Size	May 1929 No.	%	5 Mos. 1929 No.	%
High Pressure				
30x3½-23	5800	0.2	16650	0.1
32x4½-23	7181	0.3	25177	0.2
32x4 -24	4453	0.2	11619	0.1
32x3½-25	1056	0.0	1056	0.0
34x4½-25	101	0.0	2181	0.0
Total	18591	0.7	56683	0.5
20" Truck				
30x5	455958	17.7	1745948	14.5
32x6	45954	1.8	231656	1.9
34x7	25549	1.0	85706	0.7
36x8	14385	0.6	62505	0.5
40x10	.....	....	304	0.0
Total	541846	21.1	2126119	17.7
22" Truck				
36x7	892	0.0	1924	0.0
38x8	3227	0.1	6199	0.1
Total	4119	0.2	8123	0.1
24" Truck				
34x5	1260	0.0	3064	0.0
36x6	1431	0.1	21038	0.2
38x7	6330	0.3	26367	0.2
40x8	6385	0.3	34337	0.3
44x10	.....	....	246	0.0
Total	15406	0.6	85052	0.7
Airplane				
8x3	45	0.0	245	0.0
12x3	102	0.0	757	0.0
14x3	20	0.0	20	0.0
18x3	87	0.0	581	0.0
16x3½	52	0.0	1016	0.0
20x3½	1663	0.1	2264	0.0
20x4	113	0.0	514	0.0
20x5	.....	....	211	0.0
20x6	11	0.0	368	0.0
20x8	14	0.0	410	0.0
24x10	.....	....	109	0.0
18x4 Cl.	2945	0.1	6797	0.1
Total	5052	0.2	13292	0.1
GRAND TOTAL	2,574,224		12,017,743	

Goodyear Production Year by Year

THE Goodyear Tire & Rubber Company, in its recent national advertising campaign, has published an interesting statistical table of their yearly production of tires, which is reproduced below. The table shows the steady and startling increase in output and is indicative of the tremendous growth of this company in particular and of the industry in general.

Year	*Tires*	*Year*	*Tires*
1902	4,476	*1916	4,118,399
1903	7,781	*1917	5,880,544
1904	6,666	*1918	3,790,212
1905	12,626	*1919	8,137,353
1906	23,712	*1920	6,863,140
1907	28,307	*1921	5,152,503
1908	35,282	*1922	7,887,243
1909	94,200	*1923	9,119,335
1910	261,888	*1924	10,056,437
1911	420,255	*1925	12,458,144
1912	1,084,134	*1926	13,781,714
1913	1,281,487	*1927	16,002,630
1914	1,788,484	*1928	21,577,491
1915	2,656,588	Total	132,531,031

*Largest annual production of any rubber company in the world.

Massachusetts Rubber Companies Go Forward with the Industry

Recent Survey of Middlesex County Manufacturers Show That Firms at the Seat of the American Rubber Industry Are Making Steady Progress Despite Rise of New Centers

THE Associated Industries of Massachusetts recently published a survey of the industries in a group of Massachusetts towns and cities in Middlesex County, adjoining Boston. The cities surveyed were Everett, Malden, Marlboro, Medford, Melrose, Newton, Somerville, Waltham, and Woburn. The towns included Arlington, Acton, Ashby, Ashland, Ayer, Bedford, Belmont, Billerica, North Billerica, Chelmsford, Concord, Dracut, Framingham, Groton, Holliston, Hudson, Lexington, Littleton, Maynard, Natick, North Reading, Pepperell, Reading, Shirley, Stoneham, Stow, Townsend, Wakefield, Watertown, Westford, North Wilmington, Winchester.

Out of this group, nine cities and towns have rubber factories, whose beginnings in many cases date back to the founding of industrial New England. As an interesting contribution to the rubber history of New England, THE RUBBER AGE herewith reprints the excerpts referring to the various rubber companies.

MALDEN

The Boston Rubber Shoe Company

In 1850, The Edgeworth Rubber Company was organized in the expectation that it would be able to compete successfully against the four large concerns then operating under licenses granted by Charles Goodyear to manufacture vulcanized rubber boots and shoes, but the venture failed and three years later the assets were sold to the Malden Manufacturing Company which had been formed with $200,000 capital. The new concern negotiated with Goodyear associates for a license, and chose Elisha S. Converse as treasurer.

In 1855, the company was reorganized, $175,000 added in capital and the name changed to Boston Rubber Shoe Company which it bears today as one of the Massachusetts units of the United States Rubber Company.

Large additions to the plant were made and in a little more than 15 years, production was increased from 260 pairs to 15,000 pairs per day, while sales jumped from $270,000 a year to $1,600,000 annually. On November 27, 1875, every building, save one, was laid in ashes, but on the 29th day of the following May the new plant was in operation.

In 1883 the plant in Melrose was erected. Both are now a part of the United States Rubber Company and employ 2,700 operatives.

The Converse Rubber Company

In 1908, the Converse Rubber Shoe Company was incorporated, headed by M. M. Converse and the next year a modern plant, containing 27,000 square feet, employing 400 operatives, and capable of producing 3,000 pairs of rubber footwear daily, was erected under the personal direction of Hugh Bullock.

By 1928 the plant included five acres of manufacturing space, employed 2,000 hands, and had a daily output of 18,000 pairs of rubber footwear.

The plant and assets of the corporation were purchased in 1928 by B. Kaufman, president of the Archer Strauss Rubber Company and of the Hodgman Rubber Company, both of Framingham, thus giving the group associated with him control of three large rubber manufacturing units in Massachusetts.

MEDFORD

The Wellman Company

In the early years of the rubber boot and shoe manufacturing industry all soles were cut by hand in order that the operator might obtain the proper bevel by cutting the stock with the knife held at an agle.

Willard F. Wellman believed it possible to obtain the same result through the medium of a machine, whose movements would simulate the action of the human arm as it functions in the elbow and wrist motions. He realized that the necessity of cutting soles with a beveled edge could scarcely be obviated, due to the fact that the thin edge of the bevel is more readily attached to the upper in the manufacture of the rubber shoe. On February 18, 1888, the Wellman Company was organized to market the new invention, and it suffered from the difficulties encountered by any concern that attempts to bring into use an untried machine. There was prejudice against the machine method, doubts as to its efficiency over the hand process, and as the first few machines were too light for the work radical changes became necessary before factories could depend upon them to cut the sheeted stock without undue vibration.

The first successful machine was delivered to the factory of the Boston Rubber Shoe Company, in Melrose, April 11, 1891, and subsequently the Wellman Company acquired the patent rights to the pattern, and the Anderson machines, both of which operated in a similar manner to the original Wellman invention, and in the intervening years the devices have been brought to a high degree of perfection. They are now in practically all rubber shoe manufacturing concerns in America and abroad. H. P. Ballard is president and treasurer, and J. D. Wilmot, secretary of the corporation, which has capital of $80,000.

HUDSON

Firestone Footwear Company

In 1885 the late Lewis Dewart Apsley founded the Goodyear Gossamer Company at Hudson, and the original

factory built by him was three times enlarged within the next five years, becoming in 1890 the largest producing concern of gossamer garments in the United States, and giving to the town its biggest establishment.

In 1892 the concern was reincorporated as the Apsley Rubber Company, and rubber boots and shoes were added to the line of products, while sixteen acres of land were acquired and plant extensions undertaken.

In 1920 the Firestone Tire and Rubber Company of Akron, Ohio, acquired a controlling interest in the concern, and the corporate name was changed to Firestone-Apsley Rubber Company. In 1926 the enterprise was reincorporated as the Firestone Footwear Company. Sixteen hundred hands are employed and the concern has capital of $2,000,000. Rubber and canvas footwear constitute the products. Harvey S. Firestone is president and general manager, J. W. Thomas, vice-president, and J. J. Shea, treasurer.

READING

Reading Rubber Manufacturing Company

The largest local industry is the Reading Rubber Manufacturing Company, which has a capital of $750,000 and employs 175 operatives in the production of rubberized auto top materials.

The concern has a Boston office at 89 Franklin street. Frederick C. Hopewell is president, James Clemens, treasurer, and John P. Hach, assistant treasurer.

FRAMINGHAM

The Archer Strauss & Hodgman Rubber Enterprises

Few manufacturing concerns in Middlesex County have shown a greater increase in size and importance than the Archer Strauss Rubber Company, which, in 1928, added a brick and steel plant, 227 by 100 feet, one and two stories high in different sections of the country.

The company manufactures rubberized fibres and now employs 200 operatives, whereas but a few years ago it carried considerably less than a hundred on its payrolls. It has capital of $350,000. M. B. Kaufman is president.

The Hodgman Rubber Company whose officers are identical with those of the Archer-Strauss unit, employs 125 operatives in the manufacture of rubber clothing and sheeting. On January 1, 1929, both corporations were combined as the Hodgman Rubber Company.

F. S. Carr Company

The F. S. Carr Company with capital of $1,000,000 employs 2,500 hands in the manufacture of auto top material and rubberized fabrics, the Boston office of the concern being located at 31 Beach street. Fred S. Carr is president, H. K. Johnson, secretary and Thomas H. Dumper, treasurer.

NEWTON

Stowe & Woodward Company

The Stowe & Woodward Company produces rubberized fabrics and rubber covered rolls, at its Newton Upper Falls plant, where 150 operatives are employed.

The corporation has capital of $200,000, and F. R. Woodward is president, and S. B. Ward, treasurer.

WATERTOWN

The Hood Rubber Company

Standing upon 95 acres of land in Watertown, owned or controlled by the Hood Rubber Company, are upwards of sixty buildings, many of them of tremendous size, and representing an increase in a little over thirty years of almost thirty times the factory capacity of the initial structure that was opened by Frederic C. Hood, the founder, for production on November 17, 1896, when twelve pairs of rubber shoes were made by the small group of employees. The following day they stepped up production to 216 pairs, and by December of that year, the output had grown to 3,000 pairs a day. In less than a quarter of a century the company was to take its place as the largest single plant in the United States for the production of rubber and canvas footwear in the world, with a daily production capacity of 90,000 pairs of footwear, 3,600 pneumatic tires, 7,000 tubes, 150 solid tires, 50,000 pairs of rubber heels, and 15,000 pairs of rubber soles.

To manufacture this quantity of rubber products the machines at Watertown use six million pounds of compounded rubber every month in the year, and employ 22,000,000 square yards of fabric every year—enough to form a strip a yard wide reaching from the North to the South Pole.

In 1919 the Hood Rubber Products Co., Inc., was organized to take care of this world-wide distribution and it maintains branches in forty of the principal cities of the United States.

Tennis and gum shoes, gaiters, arctics, lumbermen's shoes and rubber boots, in the order named, constitute the general products, to which have been added rubber heels, soles and taps, rubber reducers, pneumatic tires and tubes, and solid tires, radio and automobile battery boxes and jars—all of which indicate that the management has been alive to the possibilities in new industries that have come into being since it started, such as the automobile and the radio.

Within the past two or three years four substantial structures at the Watertown Arsenal have been leased from the United States Government for shipping and storage purposes, and five or six years ago the Hood Rubber Company acquired the buildings formerly used by the Union Carpet Lining Company of Watertown.

Few manufacturing plants in the United States are more self-contained than the Hood concern. It has 150 trained men in its research, engineering and development departments; it instituted the first industrial rubber chemical laboratory in the United States; it has the second largest automatic dialing industrial telephone system in this country; it was the first industrial concern in the United States to install the Tele-tape system of automatic telegraph receptions; it maintains three plant hospitals, carries six registered physicians, two registered dentists, and a registered optician, as well as nine trained nurses, for the service of its 8,500 employees, and the plant enjoys the honor of being rated by the United States Public Health Service as having the highest health record of any industrial concern reporting to that Bureau. Its service department also includes an employment unit, safety and sanitation supervision, a restaurant, library, and recreation room.

It maintains one of the largest printing plants in the country, and its mechanical engineers have evolved much new machinery, some of which was manufactured in its own machine shop. This has replaced hand methods by mechanical operations.

The success of the Hood Rubber Company is a positive denial of the theory that exists in some quarters to the effect that Massachusetts and New England are disadvantageously placed for successful competition in the American or foreign markets.

The Haartz-Mason Rubber Manufacturing Company

The Haartz-Mason Rubber Manufacturing Company is engaged in the manufacture of rubberized fabrics, its principal products being sport fabrics for automobile tops, raincoat cloths and hospital and nursery sheetings. In addition,

(*Concluded on page* 321)

Siam Rubber Industry Shows Recent Growth

SIAM in late years has taken a place among the rubber producing countries of the world, according to the Department of Commerce.

For many years Siam turned out only small quantities of ficus rubber but in the last four years it has produced an average of about 5,000 tons of hevea rubber annually.

Statistics compiled by the rubber division of the Department show that Siam, whose shipments of rubber go chiefly to Singapore and Penang, exported 4,882 tons of hevea to Malaya last year.

Most of this Siamese rubber comes from the Provinces of Phuket, Nakon Sritamaraj and Patani, but some is from the eastern side of the Gulf of Siam and there are some fairly large areas now coming into bearing.

Rubber now occupies fourth place among commodities exported from Siam, and further increase in the production is anticipated.

There are two European rubber estates in the Naradhivas Province of the Patani circle and it is probable that elsewhere there are a few other estates owned and managed by Europeans. The great majority of the planters, however, are of Asiatic origin and include Siamese, Chinese, and Malays. The Chinese are particularly noticeable in the Provinces of Patani, Songkla, and Nakon Sritamaraj.

The Asiatic rubber holdings are of three types. In some instances the trees are planted separately. In other instances the trees are interplanted with tapioca, bananas, and coconut palms. Finally there are trees planted along the roadside and around the native houses.

The office of the Minister of Agriculture estimates that the acreage planted to young trees not in production totals 190,003 acres, while the acreage planted to trees in production amounts to 102,407 acres.

Grave doubt exists as to the accuracy of the above figures, which are compiled largely from estimates submitted by village headmen, many of whom are illiterate and do not understand how to estimate planted areas.

A considerable portion consisted of wet rubber. As conditions during 1928 were abnormal because of price declines, the exports for the previous year give a clearer indication of the country's production, there being no local consumption. In 1927 the exports of rubber totaled 5,472 tons, of which 3,611 tons were wet rubber. These exports indicate an area in production in the neighborhood of at least 35,000 acres. On that basis and taking the area not in production at slightly less than twice the productive area, the ratio indicated by the government figures, the total planted area can be put down at fully 100,000 acres.

From conversations with government officials, the reporting officer of the Department of Commerce was of the impression that the newly planted areas are from three to four times as great as those in production. This impression was confirmed by observations from a motor car driven over some 200 miles of roads through the rubber districts of lower Siam. Accordingly, it is believed that the area in production is approximately 35,000 acres and the planted area not in production about 125,000 acres, giving a total planted area of 160,000 acres—which estimates, it is thought, are conservative, a planted area as great as 200,000 acres being entirely possible.

Significant of the interest being taken in rubber is the fact that a considerable acreage has been planted since the severe price decline that occurred in the early spring of 1928. This indicates a confidence in the future that may lead to further extensive planting, particularly in view of the large areas of jungle land that are still available for cultivation.

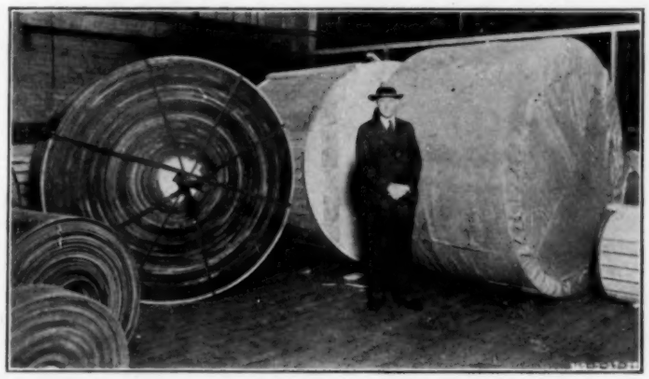
Plenty of land is available and can be secured on the payment of charges which are really only title fees and amount to six satangs per rai or less than seven one-half cents gold per acre.

Southern Siam is by no means a new country that is just being opened up. It has a stable population and problems arising from a shortage of labor do not exist.

Rubber Belting at Chile Mine

FORTY-EIGHT thousand pounds of belting is being sent an American copper mining company in Chile by the Goodyear Tire & Rubber Co. This is the second large order to have been received from the Chilian company, the total amount of which was 114,000 pounds.

A. A. Teisher, Akron factory representative, was sent to Chile by Goodyear to make a survey of the needs of the copper mining company. After a thorough engineering



F. J. Horne, chief engineer of the Chile Copper Company shown with the shipment of belting at Akron

study of this company's mammoth conveyor installations he made recommendations which were accepted by the company. Also while there he educated the copper company's personnel in the use of electric vulcanizers built by Goodyear for the concern and in the making of vulcanized splices in these large conveyor belts.

The order for 48,000 pounds of belting was divided as to specifications as follows: one roll 445 feet long, 60-inch 12 ply; one roll 446 feet long, stacker; one roll 602 feet long, 54-inch 10 ply stacker; covers one-quarter inch top one-eighth pulley.

It is to be used in the company's copper ore crushing plant at Tocopilla, Chile, for carrying ore from the primary crusher through other crushing operations until the ore is reduced to three-eights of an inch. This is one of the most difficult operations to which belting might be applied.

Bulletin on Tire Cotton

The Committee on New Uses of Cotton composed of representatives of the Cotton Textile Institute of New York and various government laboratories, met at the Bureau of Home Economics, United States Department of Agriculture, on June 5. E. T. Pickard, Textile Division, United States Bureau of Foreign and Domestic Commerce, reported that a new bulletin on "Cotton in the Rubber Tire Industry" is now ready for printing, while reports on the use of cotton in aviation are in preparation.

BOOK REVIEWS

INTERMEDIATES FOR DYESTUFFS. By A. Davidson, B.Sc., A.I.C. Published by D. Van Nostrand Company, Inc., New York City. 1929. 256 pp.

A laboratory outline of dye intermediates, this volume is a treatment of a selected number of parent coal-tar compounds which have been taken as starting points, and from them their different derivatives are built up, thus showing the chemistry of both the parent substance and the derivative.

WHO'S WHO IN THE CHEMICAL AND DRUG INDUSTRIES. Edited by William Haynes. Published by Haynes Publications, Inc., New York City. 1929. 437 pp.

The biographies of 3,736 persons in every branch of the drug and chemical industries are listed in this volume with their personal records, industrial achievements, and other data. This is the first edition of a work that is to be issued annually.

NTDA COLLECTION SERVICE. Published by the National Tire Dealers' Association, Inc., Akron, O. 1929. 16 pp.

Credit adjustments have long been a serious problem to the individual tire dealer, and the centralization of this work through a trade association should result in a considerable reduction of losses. This pamphlet outlines the NTDA contract and plan of operation for the collection of claims.

SEEING THROUGH LIFE. Published by the National Society for the Prevention of Blindness, 307 Seventh Avenue, New York City. 1929. 28 pp.

More than 400 agencies are co-operating with the Society for the Prevention of Blindness, including the National Safety Council, the American Association of Industrial Physicians, and the American Federation of Labor. Invaluable work has already been done in an attempt to prevent loss of eyesight in industrial plants. This report lists the industrial and other activities of the organization.

FRICTION CLUTCHES. Published by the Carlyle Johnson Machine Company, Manchester, Conn. 1929.

The use of friction clutches is so extensive through various industries that this company has assembled separate catalogs for each industry, showing pages of different applications of its clutches to machines and problems in that particular field. The catalogs are in loose-leaf form.

CONQUERING THE ILLUSION OF ECONOMIC ISOLATION. By Magnus W. Alexander. Published by the National Industrial Conference Board, Inc., New York City. 1929. 16 pp.

A reprint of the address by the president of the National Industrial Conference Board at the annual meeting of that body, this pamphlet presents the case for co-operation and co-ordination of economic effort. Mr. Alexander speaks from the broad viewpoint of 30 years' experience in industry both in the United States and abroad.

THE UPBUILDING OF SOVIET RUSSIA. By Joseph M. Pavloff. Published by the Amtorg Trading Corporation, New York City. April, 1929. 40 pp.

This pamphlet is a chapter of the book "Doing Business with Russia," to be published by Harper & Brothers at the beginning of 1930, and presents a five-year plan for industrial development in the Soviet Union. Whereas Russia produced 65,100 tires in the fiscal year 1927-28, the author estimates that 460,000 will be produced in 1932-33. Rubber shoe production totaled 36,900,000 pairs in 1927-28 and is estimated at 65,000,000 pairs for 1932-33.

STORAGE BATTERIES. By Morton Arendt, E.E. Published by the D. Van Nostrand Company, Inc., New York City. 1929. 290 pp.

The storage battery has made its way into many industrial and scientific fields and has now become a necessary adjunct to science and industry, its own sales record totaling about $100,000,000 a year. This volume discusses the general theory of the storage battery, its manufacture, installation, operation, maintenance, testing and applications.

SIMPLIFIED PRACTICE: WHAT IT IS AND WHAT IT OFFERS. Published by the United States Department of Commerce, Washington, D. C. 1929. 74 pp.

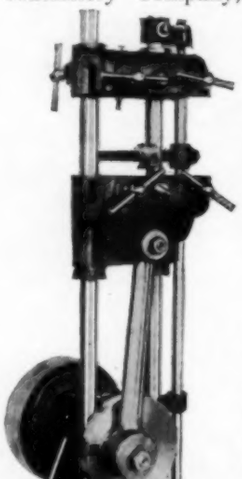
"The necessity of maintaining a high-wage level requires that all processes of manufacture and distribution be reduced to the lowest possible cost," says Herbert Hoover in a foreword to this summary of activities of the Division of Simplified Practice and description of services offered to American industries. The objectives and methods of the movement for simplified practice are described and 90 simplified practice recommendetions are listed.

INDUSTRIAL PLANT LUBRICATION. Published by E. F. Houghton & Company, Philadelphia, Pa. 1929. 60 pp.

The introduction of petroleum lubricating oils occurred in the 1860s and since that time their use has become practically universal. The history of these oils is described in this volume, the first of a series on the same topic, with sections on lubricating theory and practice, lubricating devices and related subjects.

Fatigue Testing Machine

A NEW testing machine for laboratory purposes has been the latest apparatus introduced to the industry by the De Mattia Division of the National Rubber Machinery Company, Clifton, N. J. The apparatus is shown in the accompanying photograph.



Fatigue Testing Machine

Test pieces of cured rubber or elastic compounded material of conventional sizes are tested for elongation, tensile or flexing strength by the simple operation of extending and releasing it continuously and at predetermined speed, to the point of breaking.

The machine is designed for quick change of the elongation travel, and rapid sure grip of jaws. A valuable feature of the machine consists in the possibility to check the degree of vulcanization between a test piece cut from a regular product and a like piece cured in a test or sample mold.

The applications of the fatigue tests are many and can be extended to all rubber goods from which elastic features and resistance against bending and cracking in surface are required.

April Tire Output Sets New Peak

PRODUCTION of pneumatic casings of all types by tire manufacturers in the United States reached a new record high figure of 7,883,805 during the month of April, according to statistics compiled by the Rubber Manufacturers' Association, Inc. Shipments were high, but did not quite equal production and, as a consequence, inventories rose to a new peak for the fifth time in successive months, totaling 16,929,077 casings. The new peaks in production and stocks were due to record-breaking output of balloon casings, as the number of high pressure casings turned out was less than during March.

The figures for April, as released by the Rubber Manufacturers' Association, Inc., represent 75 per cent of the industry in the United States and have been brought up to represent 100 per cent in the following table:

TIRE AND TUBE PRODUCTION
(All Figures Represent Thousands)

	March, 1929			April, 1929		
Pneumatic Casings:	Prod.	Ship.	Invent.	Prod.	Ship.	Invent.
All types	7,519	6,708	16,352	7,884	7,294	16,929
Balloon	5,639	5,152	10,478	6,136	5,498	11,129
High Pressure Cord	1,864	1,543	5,774	1,740	1,780	5,723
High Pressure Fabric	16	14	99	7	16	78
Solid & Cushion Tires	48	54	191	51	58	183
Inner Tubes:						
All types	7,466	6,738	17,750	7,634	7,164	18,134
Balloon	5,495	5,031	10,584	5,835	5,229	11,159
High Pressure	1,968	1,702	7,142	1,796	1,930	6,960

RUBBER CHEMISTRY and Technology

The Consumption Of Accelerator During Vulcanization*

[In Two Parts—Part II]

By L. V. WISTINGHAUSEN

The Effect of Sulfur in the Presence of 12% Zinc Oxide

The consumption of diphenylguanidine was decidedly less using 1.9% sulfur than using 3.8% sulfur, and decidedly more using 7.5% sulfur. The curves for the three types of raw rubber are given in Fig. 20 and 23.

The effect of doubling the quantity of sulfur, that is, the distance between the curves representing the 1.9%, 3.8%, and 7.5% sulfur, is least in the case of sprayed rubber, no doubt due to the presence of the natural accelerator, and greatest in the case of Peru rubber.[4]

The stress-strain curves (Fig. 21, 22, 24) show that with increased sulfur there is an increase in cure, which somewhat parallels the accelerator consumption. Therefore in these ZnO compounds, the accelerator must have participated in the reinforcement obtained by increasing the sulfur. Moreover the optimum cure was generally reached in twenty minutes. (Fig. 25, 26, 30.)

The phenomena noted, using any of the three types of raw rubber with D. P. G., are much the same in the case of Captax and first latex crepe. (Accelerator consumption, Fig. 27; stress-strain curve, Fig. 28.) Sprayed rubber and Peru, however, show no marked increase in the consumption of Captax with increased sulfur.

Fig. 27 also shows very well the well known differences in the activity of D. P. G. and Captax as regards the accelerator consumption. All the Captax curves rise more sharply over the period 5 to 20 minutes than the corresponding D. P. G. curves; they then fall off toward the horizontal axis, crossing the D. P. G. curves. The steeper initial rise of the curve corresponds to the tendency of the accelerator to cure sooner. The flat character of the latter part of the curves is worthy of notice.

However, in the case of the compounds investigated, the attainment of the maximum consumption value did not coincide with the best technical cure. On the contrary, the consumption curve, after passing the point of optimum cure (5 to 10 minutes in the case of Captax, and 20 to 30 minutes in the case of D. P. G.), continues on, without any noticeable change in direction, through the zone of reversion (Fig. 29), and therefore a certain parallelism between this further consumption of accelerator and its "devulcanizing" action is hardly mistakeable. Thus, in the Captax compounds, except in the case of sprayed rubber containing natural accelerator, when the maximum consumption was reached the stress-strain curves for the 60- and 90-minute cures lie close together; and likewise in the D. P. G. compounds the displacement of the stress-strain curves seems to follow the trend of the consumption curve, corresponding to the type of rubber used. (Fig. 25, 26, 30.)

The Effect of Fillers on the Extraction of the Accelerator

From a compound consisting of

Rubber	100 parts
D. P. G.	1.4 parts
Sulfur	3.8 parts

it was possible to extract after a five and ten minutes cure 63% and 61%, respectively, of the added accelerator. The addition of 38.5% of Thermatomic carbon caused no noticeable decrease in the percent of accelerator extractable, but the addition of other blacks did. (Table III.)

Table III

% Black Calc. on the Rubber	*D. P. G. Remaining After a 10-Minute Cure*
19% Thermatomic	60%
38% Thermatomic	60%
42% Micronex	37%
42% D F special black	27%
42% R Z lamp black	47%

This phenomenon may be ascribed to the different adsorbtive capacities of the various blacks,[5] a function which is approximately proportional to the degree of fineness. In the case of Thermatomic carbon, adsorption is hardly noticeable, so that its general use is thereby facilitated.

The type of zinc oxide used was varied (preceding formula +126% ZnO), and 5- and 10-minute cures run, but no noticeable

*Translated from *Kautschuk*, *Vol.* 5, *Nos.* 3-4, *Pages* 57-61, 75-77, *Mar.-Apr.* 1929. *By J. P. Fahy.*

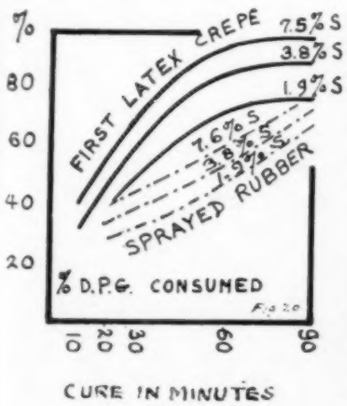


Fig. 20
Accelerator consumed

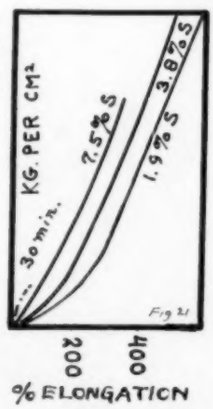


Fig. 21

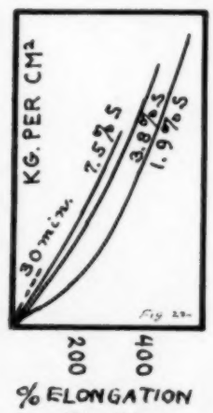


Fig. 22

Stress-strain curves
F. L. Crepe Sprayed rubber
Diphenylguanidine, 12% ZnO.

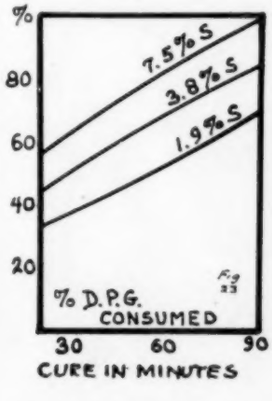


Fig. 23
Accelerator consumed

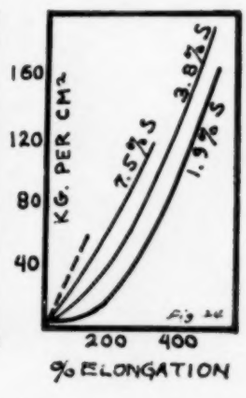


Fig. 24
Stress-strain curves
Peru, Diphenylguanidine, 12% ZnO.

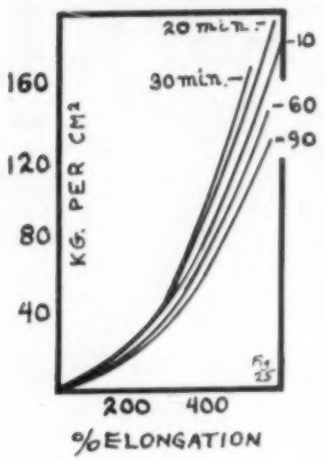


Fig. 25

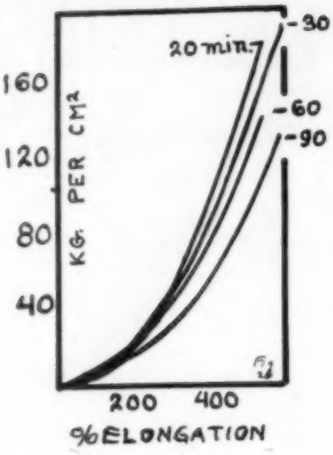


Fig. 26

Stress-strain Curves
First Latex Crepe Sprayed Rubber
1.9% S, D.P.G., 12% ZnO.

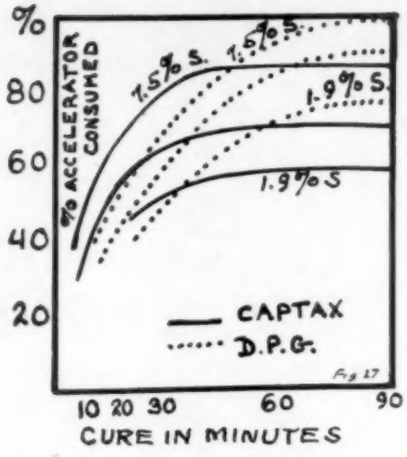


Fig. 27
Accelerator Consumption Curves
First Latex Crepe
12% ZnO.

differences in the vulcanizates could be detected (Table IV), as the D. P. G. salts, such as the sulfate, which were finally formed were extractable with acetone.

Table IV

% ZnO Calc. on the Rubber	*D. P. G. Remaining After a 10-Minute Cure*
126% "A"	53%
126% "B"	59%
126% "C"	52%
126% "D"	49%

The experiments show that the action of either accelerator is not purely catalytic but is accompanied by a consumption of accelerator, which to a certain degree is proportional to the results obtained. Where no accelerator to speak of was consumed, no acceleration in cure occurred. In the disappearance of the accelerator, a thermal decomposition as proposed by, among others, Naunton (*Chem. Centralblatt*, II, 1315 (1925)) for D. P. G. can be involved only to a very slight extent. Sebrell and Vogt (*Chem. Centralblatt* I, 169 (1925)) assume that a reaction takes place between zinc oxide and diphenylguanidine.

The formation of complex compounds by different accelerators with cobalt salts of unsaturated organic acids[6] by merely bringing the components together makes it probable that the compounds of D. P. G. or Captax with zinc oxide or zinc salts are also of a complex nature. Such compounds on the one hand might increase the solubility of the accelerator in rubber (Diphenylguanidine is more soluble in petroleum ether as the cobalt complex than alone), and on the other hand they might emphasize the electro-positive character of the central zinc atom and thereby assist in the activation of the sulfur.[7]

The limit in the consumption of accelerator reached in the presence of 12% zinc oxide might depend on the solubility limit of the zinc-accelerator compound. However, the accelerator even in combination would be extractable by acetone.

The final change in the accelerator molecule must therefore be ascribed to the action of the sulfur on the zinc-accelerator complex. This is also indicated by the increased consumption of accelerator (increase in limiting amount) obtained with increase in sulfur.

Moreover, a compound between the accelerator and the rubber molecule would be plausible.

The question, what is the relationship between the accelerator consumption curve and the curve representing the combined sulfur, can be answered only by further experiments. According to Hardman and White (*loc. cit.*) D. P. G. and Captax are so-called semi-permanent accelerators, which, with increase in combined sulfur, yield curves concave to the time axis. The degree of curvature of the consumption curve in the case of D. P. G. appears dependent on the type of raw rubber, and even more so in the case of Captax; the slowing up of the reaction is not due to the disappearance of the accelerator—on the contrary, Captax, even at temperature above 150° C., appears to be very stable in rubber compounds.

With regard to the combined sulfur, it has been shown (see also Twiss *loc. cit.*) that it increases continuously without any point indicating the position of optimum cure. The likewise continuous trend in the curve representing the accelerator consumption confirms

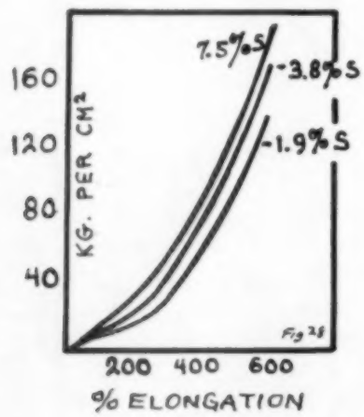


Fig. 28
Stress-Strain Curves
First Latex Crepe
Captax, 12% ZnO.

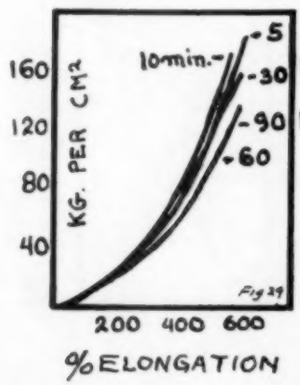


Fig. 29

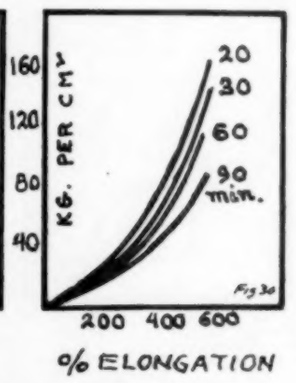


Fig. 30

Stress-strain Curves
First Latex Crepe Peru
Captax, 12% ZnO, 3.8%S D. P. G., 12% ZnO, 1.9%S

the fact that the optimum technical cure does not represent a state which can be physically or chemically defined, thus agreeing with the microscopic findings of Pohle (*Chem. Centralblatt* I, 2609 (1927)).

NOTES

4. Although decided overcures are obtained with 7.5% sulfur and 30 to 90 minutes cure, yet the accelerator content is much greater in the case of sprayed rubber than in the case of first latex crepe (Fig. 20).
5. Similar to the effect of gas black on free sulfur, observed by Twiss (*Gummi-Ztg.* **1928**, 2307).
6. A beautiful demonstration of these complex compounds accompanied by color reactions may be obtained in associating organic media (such as benzene, benzine, petroleum ether, chloroform, carbon tetrachloride, carbon disulfide, and sol-rubber—dissociating solvents such as alcohol, ether, and pyridine are to be avoided), if one dissolves about 0.2 g. of the accelerator in question in one of the solvents advised in a test tube, and adds drop by drop a benzene solution of the cobalt salt (De Haën) of linoleic, oleic, or resinic acid until the color which appears increases no further. The following colors are obtained:

Diphenylguanidine	violet
Orthotolylguanidine	vermillion
Hexamethylenetetramine	grayish-violet with tinge of green
Zinc dithiocarbamate (dissolved in benzene-acetone or benzene-alcohol)	bright blue
Zinc orthobutylxanthogenate	green
Captax	bluish green
Vulcacit P (and other addition products of secondary amines and carbon disulfide)	yellowish green

Dr. W. L. Haase, Berlin-Dahlem, examined the colors. Compared with the Ostwald color atlas, they are as follows:

Diphenylguanidine	la 12
O-tolylguanidine	ca 7
Zinc o-butylzanthogenate	lc 24
Vulcacit P	pg 24
Captax	le 22

The values are based on a layer 1 cm. thick, indirectly lighted from below by diffuse light after a maximum depth of color was reached.

7. The last assumption is confirmed by the experiments of Scholtz (*Kautschuk*, **1927**, 101): Some accelerators (such as Hexa) in the presence of zinc oxide are capable of lowering the melting point of sulfur, while others (such as Captax) require the addition of oleic acid besides. The latter fact may be explained by the fact that in the absence of oleic acid zinc oxide reacts with Captax to form a salt; if, however, oleic acid is present, zinc oleate may be formed, and the Captax can enter the salt complex as a neutral constituent.

Massachusetts Rubber Companies

(*Continued from page* 316)

the company manufactures specialties for the shoe trade and a general line of sundry rubberized fabrics.

The company was incorporated in August, 1926, with a capital of $50,000, which has since been increased to $100,000. Its officers are John C. Haartz, president, James G. Grower, vice-president and sales manager, Jesse H. Mason, treasurer and general manager, and C. Leo Thebeau, secretary.

The plant comprises two new one-story buildings of first-class mill construction, with a total floor area of about 40,000 square feet and is well equipped with the most modern and up-to-date machinery used by the rubberizing industry. The average number of employees is 125, all men except in the office organization.

SHIRLEY

President Suspender Company

In 1872, Charles A. Edgarton began the manufacture of tape by machinery, followed by the production of suspender webbing and elastic goods. In 1881, he erected a new factory, two stories high, 80 by 28 feet, and by that year 50 operatives were employed.

In 1892 the concern was incorporated as the President Suspender Company, which today has capital of $478,000 and employs 300 hands in the manufacture of suspenders and garters.

A firm believer in national advertising, Mr. Edgarton soon popularized the President suspenders and ultimately it became internationally known.

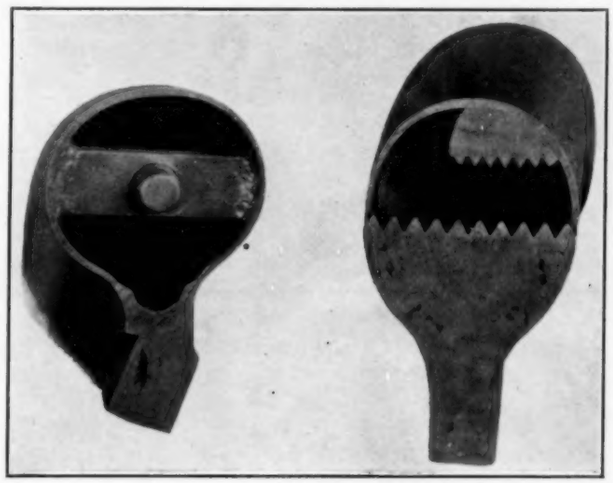
Walter E. Piper is treasurer, Elmer H. Allen, assistant treasurer, and Asa F. Clark, clerk of the corporation. Mr. Piper is also treasurer of the Tyer Rubber Company, Andover, Mass.

All-Steel Light Weight Core

THE De Mattia Division of the National Rubber Machinery Company, Clifton, N. J., has recently introduced to the industry a new type of all-steel light weight core.

The core sections illustrated represent a successful effort to lighten the burden of manipulating cores for building large bus and truck size tires.

A core of 7 inch cross section, all steel, will weigh less than 135 lbs., with other sizes in proportion. It is uniform



Two Views of the New All-Steel Light Weight Core

in thickness of metal, machined both on the inside and outside of the profile to accurate predetermined dimensions.

All joints and sectional registers are of steel. The trimming line at the toe is claimed to withstand a maximum amount of use because of its steel construction.

Inner part of toe of core may be fitted to any style of chuck to collapse the sections or to be clamped together in the conventional way.

Goodyear Boy Scout Tour

SIXTEEN Goodyear Boy Scouts, selected on merit rating, left Akron on the morning of June 15 for a two-weeks' trip through the East. The trip will be made by motor bus and automobile, the guests of the Goodyear Tire & Rubber Company.

Washington, Baltimore, Philadelphia and Niagara Falls are among the outstanding points of interest which the scouts will visit. The scouts will visit the White House and hope to meet the President.

It is possible the scout trip may be made an annual event by the Goodyear Tire & Rubber Company. This is the second time the scouts have been sent on a trip East. Several years ago P. W. Litchfield, president of the company, sponsored a similar trip, and it is hoped to make the affair an annual event.

Tire Molds That Satisfy Particular Buyers

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EDITORIAL COMMENT

Revising the Forecasts

THE time has come for the prophets of 1929 rubber production and consumption to begin making repairs in the structure of their early season estimates. In some cases the entire foundation for these prognostications must be scrapped, while in others only a few touches need be put upon the superstructure. All forecasters, however, will find the need for some revisions of their previous speculations as the story of the first half of the greatest year in rubber history draws to a close.

Before the current year had got well under way, ten leading London trade authorities had given voice to their views for the coming twelve months and the average of their opinions was that world consumption of crude rubber would total 707,300 long tons and production 709,300 long tons. One prominent broker felt that the world would absorb only 680,000 tons of rubber this year, while the most optimistic estimate for 1929 consumption was 730,500 tons. Forecasts of production enjoyed a wider range, varying from a low figure of 692,500 tons to a high of 799,000 tons, the latter including 23,000 tons for "abnormal shipments."

At the conclusion of the first quarter of the year, THE RUBBER AGE ventured to predict that 1929 consumption would approximate 756,000 tons, with production in the neighborhood of 810,650 tons. At the time these figures far exceeded any that had seen the light of publication, and even under the date of May 31 the chairman of an association of British rubber share investors asserted that he regarded them "as simply compiled for a purpose, the purpose, that is, of still further depressing the rubber market." He found that this estimate "puts consumption at a figure notably higher than any yet dreamt of" and declared he attached no great importance to it.

In the light of the first half of the year, however, it must be stated that, if any revamping of these estimates of THE RUBBER AGE is necessary, it is only a revision slightly upward. With American consumption close to 275,000 tons for the first six months of 1929, the industry in this country needs but to finish the year at a rate barely higher than during the first half of 1928 in order to reach the predicted absorption for the full twelve months of 485,000 tons. Automobile tires are being turned out in Europe in greater quantities than ever before, the entire Continent being reported as "motor mad" in the words of one New York broker. Every country mentioned specifically in the estimates bids fair to justify the consumption predictions made and some, such as Russia, appear likely to surpass their assigned quotas by a wide margin.

The continuing heavy shipments of crude rubber to the United States and the rubber estate crop tables now being published tend to prove the estimate of a production of 810,650 tons far from fantastic. While certain areas, such as Ceylon, may not quite come up to earlier expectations, the other producing countries will amply make up these slight deficits by well exceeding the output predicted for them.

Consolidations in the Industry

CONSOLIDATIONS in the manufacturing industry have been a factor tending to resist the general upward movement of prices and in stabilizing the markets in which they operate, according to a report just completed by the National Industrial Conference Board. This statement is especially significant when applied to the rubber industry. Within the last year a number of consolidations have been effected within the domestic industry. Several other observations from the Conference Board's study are of special interest. Consolidations in general were found to have achieved an appreciable superiority in production over independent producers in their respective fields, although the same may or may not be true of the distributive phase of their operations which were not included in the scope of the Conference Board's study.

A popular impression as to the financial success of consolidations generally is proved illusory in that the study of the business history of a large number of consolidations over a period of from ten to twenty-three years prior to the war, showed that, by and large, these mergers did not prove exceptionally profitable. Their combined record was found not to differ much from that of independent business concerns, in that, while many made high profits and grew in size and importance, many failed absolutely and the majority failed of conspicuous success, indicating that consolidation in itself is no substitute for business acumen or efficient management.

The effect of consolidations upon the price level is demonstrated with voluminous statistical evidence. One might well ask will further consolidations in the rubber industry have a corresponding effect on the price of tires.

The RUBBER AGE ***Published on the 10th and 25th of each month. The Only Twice-a-Month Rubber Publication.***

THE PALMERTON PUBLISHING CO., INC.
Publication Office, 1-3 Peace St., New Brunswick, N. J.
Editorial Office, 250 West 57th St., New York City
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THE RUBBER AGE is published on the 10th and 25th of each month by The Palmerton Publishing Co., Inc., a New York corporation. P. L. Palmerton, President; Earl D. Osborn, Vice-President and Secretary; Peter P. Pinto, Treasurer. Publication Office, 1-3 Peace St., New Brunswick, N. J. Subscription rates: Domestic, $2.00 a year; Canada, $2.50; foreign, $3.00; single copies, 20c. Advertising rates on application.

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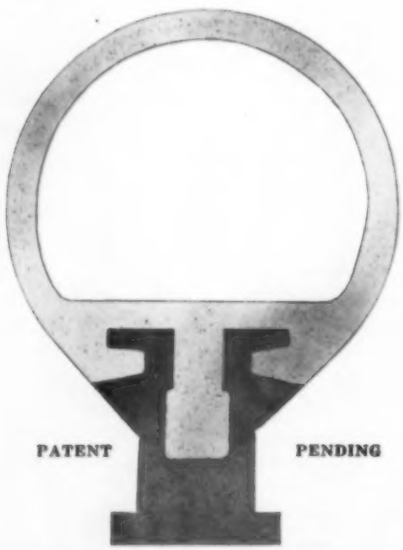

The heavy shaded portion in the above illustration shows the base of steel.

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NEWS of the INDUSTRY

Financial—Business
Building Operations
Personals
New Products

FIRESTONE BATTERY UNIT WILL BE READY IN JULY

The first unit of the new $500,000 plant being erected by the Firestone Tire & Rubber Company for the manufacture of automobile and radio storage batteries will be completed early next month, and equipment and machinery will be moved in at once. Contracts for all equipment have been awarded by the company, and the building itself is being erected by the Carmichael Construction Company.

The Firestone Battery Company, a subsidiary of the main organization, has been organized as a Delaware corporation for the manufacture of batteries, which will be produced complete in the new plant and distributed through the Firestone tire dealer organization. The new factory, which will have a capacity of 2,000 batteries a day, will employ approximately 1,000 workers. The first unit is to be two stories high and 50 by 100 feet in size, located south of the Firestone Steel Products Company plant.

FISK RUBBER SETTING NEW RECORD IN OUTPUT

The Chicopee Falls plant of the Fisk Rubber Company is setting new high records in tire production this season, largely due to new equipment of an improved type. Efficiency has also been promoted by the erection of a two-story addition which connects buildings No. 27 and No. 28 and which houses the chemical department. A new tread mill of the latest type has been installed in No. 27, and other new machinery has been installed to facilitate the processing of high quality stock for the manufacture of tire treads.

Recently a new and distinctive style of wrapping was adopted for Fisk Rugged De Luxe casings. An attractive color scheme of orange paper and purple and gold label makes a wrapping that provides an effective display to appeal to tire buyers. The new wrapping will be applied to all future production of this super line tire.

GILLETTE RUBBER PLANS EXPANSION OF WAREHOUSE

Two extra stories will be added to the present storage and shipping building of the Gillette Rubber Company, Eau Claire, Wis., making this unit a three-story structure. The building is 240 by 37 feet in size.

Production of casings at the Gillette plant is now running at the rate of 10,000 daily, with 9,000 tubes being turned out at the same time. The capital stock of the company was recently increased from $1,290,000 to $3,000,000 to provide for expansions made necessary by increasing business.

New York Police to Wear White Rubber Uniforms

Police Commissioner Grover Whalen of New York City has announced that arrangements are being made by the Police Department to furnish free to traffic policemen new white rubber uniforms for use in bad weather. These uniforms were tested recently on a busy corner in the city and were found to make traffic officers more conspicuous to motorists.

Flooring Division Meets

A meeting of the Rubber Flooring Division of the Rubber Manufacturers' Association was held at the Yale Club, New York City, on May 28. Only routine business was discussed.

Blaze at Firestone Plant

Two workmen were severely burned when a burst of flame swept over the framework of a motor which ran hot in the pump room of the Firestone Tire & Rubber Company power house at Akron on May 28. Four fire companies answered the alarm that was sent out, but the fire was subdued before they arrived.

Inland Rubber Leases Plant

The Inland Rubber Company has leased property in Holywood, Cal., for use as a factory sales and service depot, according to C. P. Turner, vice-president of the company. The building, which is being remodeled, is at Cahuenga Boulevard, between Hollywood and Franklin avenues.

Garlock Gets Ship Contract

The Garlock Packing Company, Palmyra, N. Y., manufacturers of rubber and other mechanical packings, has obtained a contract to supply the mechanical packing requirements of all vessels of the United States Shipping Board for the rest of the year. This is said to be one of the largest contracts obtainable in the mechanical packing industry. C. R. Hubbard, formerly production manager, has been made vice-president of the Garlock company, and Phil Arnold has been promoted from manager of the Cleveland branch to vice-president in charge of sales.

GOODRICH TO CONSTRUCT NEW $500,000 BUILDING

The erection of a three-story brick and concrete factory building at a cost of about $500,000 for the housing of Banbury mixers is about to be started by the B. F. Goodrich Company. The building will be on the site of the old power plant on Falor Street, Akron,, which is now being razed.

The new plant will be 100 by 200 feet in dimensions, and foundations are to be placed sufficient to support an eight-story structure in case the company should decide to add five more floors later. It is expected that the building will be completed by the latter part of the summer.

This addition will be part of a $5,000,000 building program which was inaugurated last year by the Goodrich company. A new nine-story tire warehouse, started last September, has just been completed at a cost of about $1,500,000, and other additions to the Akron factories are planned for the near future.

TEXAS RUBBER COMPANY WILL MOVE ITS FACTORY

The Southern Rubber Manufacturing Company will move its plant from Dallas, Tex., to Gainesville, Tex., as soon as a suitable building can be secured in the latter city. Expanding business forced a removal from the firm's present factory building, and it was decided at the same time to locate nearer the oil fields, where most of the company's customers are situated, and also where economies could be made in rent, taxes, water and gas.

D. D. Brailey, O. D. Upton and W. F. Collins, officers of the company, have conferred with the Gainesville Chamber of Commerce and have been assured local cooperation. They requested no bonus from the local business men, but invited representative Gainesville citizens to purchase stock and act on the board of directors.

The Southern Rubber Manufacturing Company employs about 25 workers and produces box packing, pump sleeves and other mechanical rubber goods used in large quantities by oil drillers.

Dayton Sales High in May

Sales and shipments of the Dayton Rubber Manufacturing Company during May were the largest in the history of the firm for that month, according to an announcement by President John A. MacMillan. During May contracts representing a sales volume of $3,000,000 were signed, making a total of more than $8,000,000 worth of business contracted for this year by distributors under a new merchandising plan adopted by the company.

HUBERT SALES HEAD OF NEW YORK RUBBER CORP.

The New York Rubber Corporation, Beacon Falls, N. Y., has announced the appointment of H. N. Hubert as general sales manager. Mr. Hubert started in the mechanical rubber goods business 30 years ago with the Revere Rubber Company as salesman, becoming branch manager at New Orleans in 1910. After the consolidation of that firm with the United States Rubber Company in 1918, he was appointed district sales manager of the latter in charge of all southern branches. He has been connected with the New York Rubber Corporation in a general selling capacity for the past few years.

At the annual stockholders' meeting on May 21, the officers of the company were reelected, including Morgan W. Jopling, president; L. D. Bigelow, vice-president and general manager; Donald Hyde, treasurer; and P. D. Ash, secretary.

Sales for the first quarter of 1929 were reported as 50 per cent ahead of the first three months of 1928, this increase being due in part to a number of newly developed specialties. Standard line items, as well as Airubber sales, have shown substantial increases over previous periods, and the outlook for the balance of 1929 is regarded as favorable for a greater volume of sales.

OLYMPIA RUBBER WILL SELL MANSFIELD TIRES

The Olympia Rubber Company, recently incorporated to do business at Mansfield, O., will distribute Olympia tires and tubes for both trucks and pleasure cars. The Olympia tires will be built in the plant of the Mansfield Tire & Rubber Company and a complete line will be manufactured and placed on the market, according to J. E. LaDow, secretary of the Mansfield company.

The new company has been incorporated with 100 shares of stock of no par value. The incorporators are G. W. Stephens, P. H. Ober and J. E. LaDow, all officers of the Mansfield Tire & Rubber Company.

SYNDICATE TO PURCHASE AJAX PLANT IN TRENTON

According to newspaper reports, negotiations have been practically completed for the purchase by a Trenton, N. J., syndicate of the Ajax Rubber Company factory in that city. The purchasing company is represented by T. Arthur Karno and Samuel Kreuger.

This plant, idle about 18 months, has been held for $500,000. It occupies six and a half acres of land and four complete units make up the plant, with 280,000 feet of floor space. It was operated for many years by the Ajax company before the decision by that concern to concentrate all its manufacturing activities at Racine, Wis.

GEORGE R. BURRELL, manager of the efficiency department of the Goodyear Tire & Rubber Company, was a speaker at the meeting of the Optimist Club at the Portage Hotel, Akron, O., on June 12. He discussed the work of the efficiency engineer in modern industry.

U. S. Rubber Reclaiming Profit

In a circular analyzing the common stock of the U. S. Rubber Reclaiming Company, Inc., just issued by Kiely & Horton, New York City, it is stated that the company's earnings for 1929 have been running higher than a year ago, with tonnage of unfilled orders at the highest point of the company's history. From a comparison of balance sheets, it is estimated that net earnings after taxes have averaged over $360,000 in the last four years. The manufacturing capacity of the U. S. Rubber Reclaiming Company is said to approximate 12 per cent of the entire industry in the United States.

National Rubber Machinery

The National Rubber Machinery Company is completing the busiest and most profitable half-year of its history, with all plants operating at full capacity and two units working night shifts. Foreign business has been steadily increasing, and it is reported that negotiations are now under way to license certain foreign corporations to manufacture under National Rubber Machinery Company patents on a royalty basis. The company's sales for the first quarter of 1929 totaled $1,034,147, resulting in net profits of $163,129 or $1.55 a share on the common stock.

American Hard Rubber Busy

The American Hard Rubber Company is now producing approximately 6,000 Husted safety steering wheels daily, according to a recent analysis of the company's common stock by Hanson & Hanson, New York City. Although the company does not make public a periodical earnings statement, it is said that profits have been substantially in excess of dividend disbursements. Dividends have been paid without interruption from 1905 on the common stock, plus a special stock dividend of 40 per cent in 1922. As of December 31, 1928, current assets stood at $4,778,287 as against current liabilities of $262,337, a ratio of 17 to 1.

Mohawk Earnings High

The Mohawk Rubber Company is earning at the rate of $7.50 a share per year, according to an analysis of its stock recently made by Borton & Borton. The company earned $290,000 in the first half of 1928 and $470,000 in the second half, and the December 31 balance sheet showed a ratio of current assets to current liabilities of 5.8 to 1. Directors are expected to inaugurate a policy of cash and stock dividends on the common shares in the near future.

Dayton Builds Warehouse

The firm of Schenck and Williams, Dayton, O., has been retained as architects to prepare plans for the new $150,000 warehouse building for the Dayton Rubber Manufacturing Company of that city. The structure will be two stories high and will be of brick and concrete construction.

Goodyear Preferred Dividend

The Goodyear Tire & Rubber Company has declared the regular quarterly dividend on its outstanding first preferred stock. This dividend of $1.75 a share will be paid July 1 to stock of record as of June 1.

LOS ANGELES GROUP HEAR OUTCAULT ON ZINC OXIDE

The Los Angeles Group of the Rubber Division, American Chemical Society, held their seventh meeting on June 14 at the Pollyanna Tea Room, Los Angeles, with a large attendance of technologists present. The meeting, which was preceded by a dinner at 6:30 P. M., was a joint session with the Los Angeles Division of the American Chemical Society, many technical men being present from other industries.

The speaker was H. E. Outcault of the Technical Service Department of the New Jersey Zinc Company, New York City. He talked on the applications of zinc oxide in rubber manufacture and the specific uses of Kadox, XX Red and XX Green.

SEIBERLING WILL FORM NEW CANADIAN COMPANY

The Seiberling Rubber Company will shortly form a new Canadian company to take over the Dominion and export end of its business, according to a Montreal dispatch to the New York *Journal of Commerce*. In all probability the public will be offered an opportunity to participate in the financing.

The present company took over the plant of the K. & S. Tire & Rubber Company and now has a production of approximately 1,000 casings and tubes a day, in addition to the extensive hard rubber, hot water bottle and sundries business that had been developed by the K. & S. organization.

RUBBER COMPANY STOCKS FIRM DURING FORTNIGHT

With a few exceptions, stock issues of leading rubber companies were considerably firmer during the fortnight just ended. Fisk common and preferred and Seiberling common, however, touched new lows in the period, but were steadier at the close.

Goodyear, Goodrich and United States Rubber made substantial gains during the two weeks, and several other issues which had sunk to new low levels last month showed prospects of recovery and finished the period under review considerably higher.

Late Stock Prices

	Last Price June 17	Last Price June 4	High 1929	Low 1929
Ajax	5½	6⅝	11¼	4½
Falls	5¼	6	11⅜	5
Faultless	—	35	39⅞	32½
Firestone	273	278	309	220¼
do. 6% pfd.	109¾	109¾	111	108
Fisk	8¾	9	20¼	7⅝
do. 1st pfd.	49	—	72½	49
General	280	280	298	236
do. pfd.	96	99	102	95
Goodrich	80⅞	78	105¾	73
do. pfd.	111¼	112⅜	115¼	111
Goodyear Com.	122⅜	119½	154½	112
do. pr. pfd.	101⅜	101¼	104⅞	101
Hood	19⅞	18¼	27½	18¼
India	54	57	73	39
Intercontinental	9	8¾	14¼	8¼
Kelly Springfield	15¼	15	24	11
do. 1st pfd.	74	70	100	70
Lee	16	15¾	25	10
Miller	20	20½	28¾	19¼
do. pfd.	64	69	83	64
Mohawk	48	50	66	50
do. pfd.	—	81	90¼	81
Norwalk	3	3	6⅛	3
Seiberling	41	43	65	39
do. pfd.	—	106	107⅞	105
U. S. Rubber	52	49¾	65	42
do. pfd.	78	78	92½	73

COL. C. M. PIPER NAMED NEW FISK SALES HEAD

Official announcement has been made of the appointment of Colonel C. M. Piper as general sales manager of the Fisk Tire Company, Inc., succeeding William Wield who has resigned. Colonel Piper has been connected with the Fisk organization since early March as special assistant to the sales manager. He was formerly sundry sales manager of the Goodyear Tire & Rubber Company at Akron, O.

Frank C. Batton, formerly eastern zone manager, has been named as assistant sales manager to fill the place of Colonel Piper.

A. SCHRADER'S SON, INC., ISSUING NEW CATALOGUE

A new, twelve-page catalogue in two colors, containing pictures and prices of eighty of the 6,000 items manufactured by A. Schrader's Son, Inc., valve and gauge manufacturers, Brooklyn, N. Y., has been sent to 150,000 dealers and jobbers throughout the United States and Canada. It is supplemented with a new Schrader Valve Practice Chart containing standard valve practice as approved by the tire and rim associations.

The Schrader organization is now furnishing tire pressure discs without cost to automobile owners so that they will always know exactly how much air is needed in their tires. These are also being supplied to dealers so that they may place the discs on the rims of their customers' cars.

Rubber Division Fall Meeting

The Division of Rubber Chemistry of the American Chemical Society will hold its fall meeting in New York City as the guests of the New York Rubber Group, probably during the week of September 26. This decision was arrived at by the members of the executive committee of the division at a meeting in Akron, O., on May 20. The committee also discussed in a general manner the question of adopting a brief set of rules and regulations to guide the operations of the different rubber groups.

Goodyear Dealers Meet

A dinner meeting given by the Goodyear Tire & Rubber Company at Hotel Duluth, Duluth, Minn., last month was attended by 75 Goodyear tire dealers in the adjoining trading territory. Tire servicing methods, better merchandising and the operation of service stations were the chief subjects of discussion.

Seiberling Leases in Boston

The Seiberling Rubber Company has leased an entire building in the automobile district of Boston, Mass., and will use it for the sale and service of tires and other rubber products. The location of the new Seiberling Boston headquarters is 41 Lansdown Street.

The Puritan Rubber Company, Trenton, N. J., reports that business has increased to the extent that it has to operate its plant on a 24-hour day basis. The company specializes in rubber tiling.

Selling Rubber Footwear in Yucatan

THE climate in this town in Yucatan, Mexico is not propitious for indoor retailing of merchandise, and goods are sold, therefore, in these "kiosks," grouped about the town plaza. United States rubber footwear is distributed at this booth, operated by S. Caceres & Cia., under the curious slogan, "King of the Trousers."

Corona Cord Resumes

The tire making division of the Corona Cord Tire Company, East Butler, Pa., has resumed operations after a shutdown since November 1. About 150 men are employed, with H. B. Callahan as general manager. The tube section of the plant was operated throughout the winter.

Stokes Adds to Ontario Plant

The Joseph Stokes Rubber Company, Trenton, N. J., is completing a large addition to its plant at Welland, Ont. The building is three stories in height and machinery will be installed to take care of increased output of hard rubber items for the Canadian trade. The Trenton factory of the company is also working close to capacity.

Foote Bros. Western Office

Foote Bros. Gear & Machine Company, Chicago, Ill., manufacturers of IXL speed reducers and industrial gearing of all types, Stockland road graders and Bates Steel Mule tractors, recently established a western sales office located at 1855 Industrial Street, Los Angeles, Cal. With the establishment of this office, western sales have been placed under the supervision of E. D. Bennet in charge of the gear and reducer division and A. N. Henderson in charge of the road machinery division.

Discusses Hose Manufacture

At the regular meeting of the London Ironmongers Assistants' Association last month, J. T. Quick, director of G. & W. Purser, Ltd., delivered a lecture on rubber hose, taking the members through the entire process of construction from the time when the smoked sheet enters the factory until the hose is dispatched to the seller. W. T. Simpson gave a description of the manufacture of ordinary wrapped hose in its various forms, also molded goods and washers.

Washington Dean Moves

The Washington-Dean Company, Inc., dealers and importers in crude rubber, is now located at 48 Wall street, New York City. The company, which is a member of the Rubber Exchange of New York and the Rubber Trade Association of New York, was formerly at 10 Bridge street in that city.

T. & S. C. White Moves

The T. & S. C. White Company, operator of the Bergenport Sulphur Works, has announced the removal of its office to the New York Life Insurance Building, 51 Madison avenue, New York City. The company was formerly located at 100 William street.

Brighton Mills in Georgia

The Brighton Mills, which had been located at Passaic, N. J., for 30 years, has now completed the concentration of all its manufacturing activities at Shannon, Ga., and has established new general offices in the Candler Building, Atlanta, Ga. The plants at Passaic and Allwood, N. J., have been entirely abandoned by this pioneer fabric manufacturer.

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Rubber News Around the World

RAPSON PREDICTS HIGHER TIRE AND RUBBER PRICES

That rubber and tire prices will advance substantially before the end of 1929 is the opinion of F. Lionel Rapson, of the Rapson Tyre & Rubber Company of England and Australia. In a recent statement, he refers to the fact that a certain well known tire manufacturer has predicted that rubber will touch 4s a pound before the close of the present year and that within the next 12 months tire prices will be treble those of today.

"Whilst unable fully to agree with the exceptionally optimistic views of the manufacturer referred to," Mr. Rapson states, "I think there is far more likelihood of his prophecy being fulfilled than there is of rubber remaining at 1s per pound. I daresay that, if properly used, any make of modern cord tire would return an average of 20,000 miles, but the average is nearer 10,000.

"The waste in rubber is appalling. One can purchase a tire today at a considerably lower price than retreading cost but a year or so ago. The result is that tens of thousands of perfectly good casings are being scrapped, and, with them, some millions of pounds of equally good rubber. It is this abnormal waste that is leading to accumulated rubber stocks being absorbed much more rapidly than the experts anticipated.

"There are happy days ahead for British rubber shareholders, and I have not the slightest hesitation in recommending all who have investments in well-managed estates not only to retain their holdings but if possible to increase them."

Callender Cable Profits

The Callender's Cable & Construction Company at its annual meeting in London reported 1928 earnings at £287,081. Steady progress was reported for its American subsidiary, the Okonite-Callender Cable Company, Inc., Passaic, N. J.

Canadian Tire Production

The director of the Gutta Percha & Rubber Company, Ltd., estimates the 1928 Canadian tire output as 4,068,400 casings, 4,510,900 inner tubes, and 23,650 solid tires. This indicates an increase of 5.5 per cent over 1927.

RUBBER GOODS EXPORTS DECLINE DURING APRIL

United States exports of rubber products declined to a value of $7,045,711 during the month of April, a figure of 11 per cent lower than the all-time monthly export record in March of $7,938,203. Automotive rubber goods, which are the largest item, dropped 13 per cent in value, but increases were recorded in certain other lines, such as proofed goods, partly manufactured goods and hard rubber goods.

The United Kingdom was the largest market for rubber boots and Germany for rubber shoes, while Cuba was the chief customer for canvas rubber-soled shoes. Mexico was the leading market for rubber belting, with Mozambique the market of second size. The United Kingdom was the most important destination of exports of rubber hose, but Canada ranked first in rubber packing.

BRITISH RAINWEAR SEASON IS WORST IN MANY YEARS

Under ordinary circumstances the British rubber rainwear trade should now be in full swing, yet instead of the characteristic seasonal activity, the industry seems practically dormant. Cloth merchants, proofers, and makers-up are all inclined to blame the weather for the slump, for the forecast was that this season would be a record one from the viewpoint of demand.

Business was quiet during the second half of last year, and there are virtually no stocks in the hands of wholesale and retail distributors. Demand so far, however, is confined to sample quantities, partly no doubt owing to the cold dry weather, but also owing to the absence of a lead in garment fashions. The general feeling, if this word can be applied to so slight a movement, is that it will be a lightweight cotton Indiana season, with artificial silk garments and even Japanese silk coats well in the background.

Makers-up declare that there is a latent demand for garments which will manifest itself as soon as the weather becomes milder, but as no one holds big stocks there is a good deal of unemployment and under-employment among machinists and garment makers. It seems extraordinary that even the orders usually placed by wholesale houses for June and July delivery are either non-existent or so small as to be insignificant. The general consensus of opinion is that this is the worst season the trade has experienced for years. The industry should now be busily occupied on motorcycle capes and garments, but here again trade is dull.

Export trade is very quiet due to the weather. There is some good business with India in low sheetings and Kaffir coats, but it is insufficient to stimulate the entire industry.

The formation of the Fisk Tyre Company (India) Ltd., with head offices at Bombay, was announced last month. G. F. Tucker, who is well known in the rubber business in the United States, has been appointed managing director of the new organization, and it is reported that distributing depots will be opened in all important towns throughout India.

American Tires Around the World

THIS is a typical retail tire establishlishment in Cuba, a combination of filling station, garage and automotive distributor. American tires enjoy wide popularity among the car owners of our "little island neighbor," practically all of whom drive automoblies made in this country. The establishment shown is Jose Herreria's Miramar Garage at Havana, one of the first super service stations in Cuba.

CATALPO
for
Flexing

Names in the News

WALTER B. HARDING, president of the G. & J. Tire Company, was re-elected president of the Indianapolis Morris Plan Company at the annual business session of directors, June 5. A golf tournament followed the business meeting, in which Mr. Harding was a prize winner for low gross scores.

F. C. BRADEN, district manager of the Fisk Tire Company, spoke at a dinner to 40 Fisk dealers and automobile men at the Hotel Windsor, Trenton, N. J., on June 12.

STEPHEN BARNSON, commissioner of the state real estate department of California, spoke before the San Diego Rotary Club on May 23 on the subject of the Philippine Islands and their relation to the United States. He declared that the Philippines could produce sufficient rubber to supply all the needs of the United States if certain restrictions of acreage were removed.

C. A. GRAY has been appointed assistant manager of the Atlanta, Ga., branch of the Goodyear Tire & Rubber Company. He joined the company in 1912 as a shipping and stock room clerk at Dallas, Tex., serving continuously since that time with the exception of two years spent in military service during the war.

W. E. FOUSE, vice-president of the General Tire & Rubber Company, made a trip to Lima, O., on June 9 in one of the cabin monoplanes that will tour the country in the interest of the company. The plane was piloted by Lieutenant A. C. LYBARGER.

HARRY HUNTINGTON, president of the Huntington Rubber Mills, Portland, Ore., recently completed a trip through the east, during which he called on the trade and on a number of producers and suppliers of raw materials. The factory of the company at Portland is working two shifts on rubber heels and soles in addition to rubber buttons, bottle caps and other molded goods.

S. HOWARD EISENBERG has been appointed district representative of the Foote Bros. Gear & Machine Company, Chicago, Ill., for the states of Colorado, Wyoming and New Mexico, succeeding F. Ross EBERHARD. He has established headquarters at 2812 Ash Street, Denver, Col.

C. W. SEIBERLING, vice-president of the Seiberling Rubber Company, acted as one of the officials in a national model airplane contest conducted at Akron Airport on June 1.

H. N. HAWKES, formerly district manager of tire sales at Chicago for the United States Rubber Company, has been appointed manager of government and industrial sales at the New York office. CHARLES SAMSON has been appointed manager of accessories and repair materials.

GOODYEAR NAMES M'CLURE JACKSONVILLE MANAGER

H. F. McClure has been appointed branch manager at Jacksonville, Fla., to fill the vacancy caused by the death of C. W. Davis, it has been announced by the Goodyear Tire & Rubber Co., Inc. He will assume his duties at once.

McClure entered the service of Goodyear in 1916 at Louisville, Ky., where he was employed as a general line salesman. Later he was made manager of that branch.

In 1919 McClure was transferred from Louisville to Indianapolis as manager of that

H. F. M'CLURE

branch. He became manager of automobile tire sales for the Indianapolis district. In the fall of 1920 he was transferred to Cincinnati as branch manager.

Several months later McClure was made manager of automobile tire sales for the Central Division of the United States. Another branch which he managed was Knoxville. In 1926 he returned to Cincinnati where he again was in charge of the branch.

At the time of his appointment to Jacksonville, McClure was at Akron engaged on work in the Southern Division.

C. W. Davis, who died May 27, had been associated with Goodyear for 14 years during which time he held various responsible positions, one of the more important of which was manager of the Jacksonville branch.

E. KAMPMEIER, branch manager of the Firestone Tire & Rubber Company in the Moline, Ill., territory, will be active in the management of the new $40,000 super service station to be erected in that city under the name of Firestone Service Stores, Inc.

H. AUSTIN LENGS, export manager of Oak Rubber Company, Ravenna, O., returned to the plant last month after a tour of 12 countries of Europe. He had left Ravenna on February 3.

F. C. STANLEY, manager of the Fisk Tire Company branch at Charlotte, N. C., was in charge of a sales meeting of 50 Fisk dealers at that city on June 13.

J. E. ALLEN, district sales manager of the Fisk Tire Company for the Columbia, S. C., district, presided at a business conference of 75 Fisk dealers in the Jefferson Hotel in that city on June 6.

RUDOLF MULLER, a partner in the firm of C. F. Gundlach & Cia., distributors for Bolivia of the Firestone Tire & Rubber Company, stopped at the Akron factory of the Firestone company for a few days last month. Mr. Muller then proceeded on a visit to Germany, his native country.

E. P. BONAZZI has been appointed manager of the export department of the Miller Rubber Company, succeeding C. E. WAGNER who recently resigned. Mr. Bonazzi has been in the Miller export division for nine years and has had personal charge of sales in rubber sundries, organizing Miller's extensive development of that trade.

S. H. PHILLIPS, a former member of the British air ministry and of the advisory committee of the British bureau of aeronautics, has been appointed to the staff of experts of the Goodyear-Zeppelin Corporation who will construct the world's largest dirigibles for the United States Navy. Mr. Phillips has a record of 16 years as a builder of dirigibles, having taken part in the construction of some of England's largest ships.

E. R. PALMER, manager of the Chevrolet Motor Ohio Corporation, has been appointed treasurer of the Opel Works, Germany, recently acquired by General Motors as its German division. Prior to joining the financial and executive branches of Chevrolet, Mr. Palmer was connected with the Goodyear Tire & Rubber Company, the Gordon Tire & Rubber Company and the Mansfield Tire & Rubber Company.

W. R. WHEATLEY, Pacific coast manager of the India Tire & Rubber Company, has returned to his San Francisco office after a business trip to Portland, Ore., last month.

JOHN A. MACMILLAN, president of the Dayton Rubber Manufacturing Company, addressed the Chamber of Commerce at Greenville, O., on the evening of May 21. He spoke on the proposed 13-month calendar as related to present-day business.

PHIL J. KELLY, advertising manager of the B. F. Goodrich Company, was one of the speakers at the semi-annual meeting of the Association of National Advertisers, Inc., held May 27 at French Lick, Ind.

J. E. GEDDES, former factory representative with the Miller Rubber Company, has been appointed manager of the Miller Tire Service Company, Portland, Ore.

Current Crude Rubber Items

MINCING LANE BROKER IS EXAMINED IN BANKRUPTCY

At a recent sitting of the London Bankruptcy Court, Gordon Pagesmith, described as trading as G. Pagesmith & Co., rubber brokers, 37 Mincing Lane, was publicly examined. The debtor failed in February last with ranking liabilities £70,362 ($351,810) and net assets valued at £14,102 ($70,510). An order for adjudication was made on February 28.

Replying to V. Armstrong, Assistant Official Receiver, the debtor stated at his examination that in 1922 he entered into partnership with another person and carried on business as D. McNaught & Co. The trading was very successful until March, 1920, when the partner retired and received between £40,000 and £45,000 for his interest in the business. The witness continued it alone as G. Pagesmith & Co., having at the time a capital of £28,846.

The operations continued to be very successful, but he suffered heavy losses by bad debts, and to make good those losses he dealt from time to time in rubber and also speculated in other produce and stocks. At the end of last year he made a final plunge in rubber, which cost him £69,397. The damage was done between January 11 and 14, when rubber rose suddenly and unexpectedly. A further cause of the failure was that he was not allowed time in which to negotiate for a sale of the business or to get in the money that was owing. The sitting was adjourned after this evidence until July.

Rubber Trading Dull

Trading in rubber futures on the Rubber Exchange of New York was quiet during the fortnight, quotations falling off a cent a pound in the 12 trading days. On June 8 only 7 contracts were sold in the entire half-day session, a new low record.

Brazilian Workers Riot on Ford Rubber Concession

Brazilian workers on the Ford rubber plantation grant, dissatisfied at the introduction of negroes from Barbados to work on the concessions, started a riot on June 12 which resulted in injuries to one Brazilian. The manager of the concession is reported as having quelled the disturbance by promising that the Barbados negroes would be dismissed.

The Companhia Ford Industrial, operating the 5,000,000 acre rubber growing grant of the Ford Motor Company, on June 6 lost its appeal to the Supreme Court of Brazil against interstate duties levied on rubber seeds brought into the State of Para for planting purposes. The decision however, was based on technical grounds, the court holding that the duties were unconstitutional but that the Ford petition was not properly drawn up.

Guayule Factory Resumes

The Catorce plant of the Intercontinental Rubber Company in the state of San Luis Potosi, Mexico, has resumed operations after having been shut down for several months. During April, 83 tons of guayule were imported into the United States, the first shipments received since July, 1928.

Malacca Dividend is Cut

The Malacca Rubber Plantations declared a dividend of 7½ per cent for 1928, as against 10 per cent for 1927. The company, American shares of which are sold on the New York Curb Exchange, reported profit for last year as £53,766 as compared with £114,545 for 1927.

RUBBER EXCHANGE CUTS FOREIGN COMMISSIONS

A material increase in business for foreign account transacted on the Rubber Exchange of New York is expected as a result of the action of the membership on June 11 in adopting amendments to the by-laws reducing the rates of commission charged both members and non-members residing outside of the United States and Canada. The reduction becomes effective on July 1 next.

Members and non-members resident abroad are now paying $5 more commission per contract of 5,600 pounds for the round-turn than domestic members and non-members are. This extra charge will be reduced to $2.50 beginning next month. Under the new rate foreign members will pay $10 and foreign non-members $17.50.

F. R. Henderson, president of the Rubber Exchange, said that the new rates of commission on foreign business should make the hedging facilities provided by the exchange more attractive than ever to foreign rubber interests.

"While there has been a steady increase in the foreign business done on the exchange," Mr. Henderson said, "it is felt that the action of the members in cutting the extra commission on foreign business in half will encourage a still wider use of the protective facilities of the exchange. Rubber is a foreign-grown commodity and the big producers have their headquarters abroad. We want these interests and others abroad to be able to use our market as economically as possible, consistent with the cost of transacting foreign business on the exchange. Hence, the reduction in foreign rates of commission."

Closing Prices on Rubber Exchange of New York, Inc.

FROM JUNE 4 TO JUNE 17, 1929

		Spot	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Sales*
June	4	21.00	21.00	21.40	21.70	21.90	22.00	22.20	22.40	22.50	22.60	22.80	22.90	23.00	327
	5	20.50	20.50	20.90	21.20	21.50	21.60	21.80	21.90	22.10	22.20	22.30	22.50	22.60	537
	6	20.60	20.60	21.00	21.30	21.50	21.70	21.80	22.00	22.10	22.30	22.50	22.60	22.70	532
	7	20.80	20.80	21.20	21.40	21.70	21.80	22.00	22.10	22.30	22.50	22.60	22.70	22.90	324
	8	20.60	20.60	21.00	21.30	21.50	21.60	21.90	22.00	22.20	22.30	22.50	22.70	22.80	7
	10	20.10	20.10	20.40	20.70	21.00	21.20	21.40	21.60	21.70	21.90	22.10	22.20	22.30	995
	11	20.10	20.10	20.40	20.70	20.90	21.10	21.30	21.50	21.60	21.80	21.90	22.00	22.10	577
	12	20.20	20.20	20.60	20.80	21.10	21.30	21.50	21.60	21.70	21.90	22.00	22.10	22.20	468
	13	20.30	20.30	20.70	20.90	21.10	21.20	21.40	21.60	21.70	21.90	22.00	22.10	22.20	453
	14	20.00	20.00	20.10	20.40	20.70	20.80	21.00	21.10	21.20	21.30	21.40	21.50	21.60	1,045
	15	20.00	20.00	20.10	20.30	20.70	20.70	20.90	21.00	21.20	21.30	21.40	21.50	21.60	87
	17	20.00	20.00	20.10	20.40	20.70	20.90	21.10	21.20	21.30	21.50	21.70	21.90	22.00	429

*In lots of 2½ tons each

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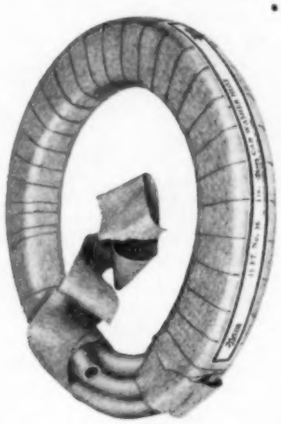
Rubber Goods and Specialties

Car Washer Hose

The Manhattan Rubber Manufacturing Company, Passaic, N. J., has added a new item to its line of automotive products in Hycoe car washer hose. This is a heavy, rugged hose, made in ½-inch 5-ply size, and strong enough to withstand the high



pressures of modern car washer machinery. Hycoe car washer hose will resist hot water and washing solutions. It is furnished in 25- and 50-foot lengths, paper wrapper, 10 lengths to the bale.

Cushion-Neck Golf Club

In an effort to eliminate the shock and vibration caused in the metal-to-metal contact of golf clubs with a steel shaft and steel head, A. G. Spalding & Brothers, 105 Nassau Street, New York City, have worked out what they term a Cushion-Neck for their line of Kro-Flite irons. At no

place in these new irons does the steel shaft come in contact with the steel head, for before the shaft is fitted into the hosel of the club it is enclosed in a cushioning sleeve of lively rubber. The rim of the hosel is crimped around the rubber, sealing out the air and retaining the liveliness of the rubber for the life of the club.

Mallard Duck Call

A new item for the use of duck hunters has been developed by Philip S. Olt, Pekin, Ill., and is now being offered to the sporting goods trade. Under the name of Olt's Mallard duck call, a unique device for attracting ducks has been developed. Genuine hard rubber, highly polished, is used throughout in the manufacture of this new duck caller. The device has no cork in it to hold the tongue in place. Instead, the tongue is held between two hard rubber lips, tightly fitted and forced into the shell. The call is always ready for use and has been constructed for sturdy service.

Sport Soles in Color

Sport soles in which at least a portion of the design is carried out by means of inlays instead of by a process of molding the material of which the sole is made, have recently appeared in the Gro-Cord line of the Lima Cord Sole & Heel Company, Lima, O. The design is a clever combination of the artistic and the practical, as the sun and its surrounding circles, in reds and yellows, grip the ground under the middle of the ball of the foot, while the radiating rays prevent side slipping.

Pneumatic Face Gloves

The pneumatic face glove is a new London novelty, which, when used regularly has a beneficial effect upon the skin. In appearance the glove seems to be just an ordinary article, inflated, but a little investigation reveals the secret. Attached to one-half of the inside of the glove is a brightly-colored rubber pneumatic cushion (a shade smaller than the actual glove, so that it can not be seen from the outside) which is the specialty of the toilet article. The glove is used in the ordinary way, except that the cushion must face the palm of the hand when the latter is put inside. Each glove is packed hygienically in a sealed transparent paper packet and retails in London for the equivalent of 35 cents.

As an addition to its line of hard rubber novelties, the Avon India Rubber Company, Ltd., 343 Euston Road, London, England, is manufacturing the Avon Deck Companion Set. A framework to hold blotting paper and a smaller piece to contain inkwells, pen rests and sundries comprise the set.

U. S. Peerless Tire

In order to enable its dealers better to meet the competition of mail order, chain store and other special brand tires on the market, the United States Rubber Company, 1790 Broadway, New York City, is now offering a new casing under the name of

the U. S. Peerless. It has a strong carcass, and the tread is the same block design which has long been the distinguishing feature of the U. S. Royal cord. The tread contour is also similar, being narrow and built up at the shoulders, while the non-skid is deep so as to give extra mileage.

Paracord Golf Ball

After exhaustive tests, the Endicott Johnson Corporation, Johnson City, N. Y., is putting on the sporting goods market a new golf ball that is said to be capable of exceptionally long flight and excellent putting qualities. The Paracord golf ball, as it is named, is made with a small hard

rubber centre. This centre is wound with the best quality rubber thread, a portion of the winding being done by hand and the rest by machine. The company claims to have found that better balance in the finished product is given by starting the ball with hand winding. The cover of the ball is pure white all the way through and is, therefore, much easier to find after the paint has become worn.

AKRON SAFETY ENGINEERS HEAR LIGHTING ADDRESS

Meeting at the clubhouse of the Firestone Tire & Rubber Company last month, members of the Summit Society of Safety Engineers listened to an address by T. P. Brown, district lighting engineer of the Edison Lamp Works, on the subject of industrial plant lighting. Mr. Brown discussed safety features through correct lighting and pointed out the opportunity of increasing production by modern lighting methods.

Dr. J. S. Millard of the Goodyear Tire & Rubber Company spoke on the danger of infection from scratches and minor injuries not properly and immediately cared for. The members closed the session by adopting by-laws to govern future discussions. J. S. Kidney, Goodyear department manager, presided and Walter H. Lowe of the Miller Rubber Company acted as secretary.

Stamp Theft at Goodrich

Arrest of M. L. Simon, real estate and metals broker, at Cleveland, last month is believed to have broken up a nation-wide stamp stealing ring that numbered among its victims the B. F. Goodrich Company, from which $17,000 worth of stamps are alleged to have been taken. G. W. Bashore, employe of the Goodrich Philadelphia office, is said to have confessed the theft of the stamps for which Simon is alleged to have served as a fence. A suit to recover $17,200 was filed in the Cuyahoga County common pleas court by Goodrich, and Simon's automobile and bank account have been attached.

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LATE MARKET PRICES

Crude, Scrap & Reclaimed Rubber - Cottons and Fabrics

NEW YORK, JUNE 17, 1929

COTTON

DURING the past fortnight, the cotton market maintained a relatively good tone, with price quotations closing slightly higher than those recorded two weeks ago. Prospects of heavy weevil damage have restrained bearish activity, though the outlook during June has been considerably better than a month ago. Good progress has been made this month and, if hot dry weather conditions are experienced in July and August, the weevil menace will be appreciably mitigated.

According to statistics compiled by the Association of Cotton Textile Merchants of New York, domestic sales of standard cotton cloths during May only amounted to 81.5 per cent of production, while unfilled orders decreased 11.1 per cent. This shows mills sold a little more than one day ahead of production. The trade is now showing greater interest and while buying from this source has not been active, considerable cotton has been absorbed on declines in the past two weeks.

High, low and closing prices quoted on June 17 were as follows:

	High	Low	Close	Close
	June 19			June 3
July	18.56	18.34	18.52	18.40
Sept.	——	——	18.68	18.60
Oct.	18.63	18.58	18.79	18.55

Tire Fabrics

Tire fabrics were in average demand during the past fortnight, but it is reported that curtailment of one week in July is likely in several tire fabric mills. The tire industry is estimated by the Rubber Manufacturers' Association to have consumed a total of 31,492,910 pounds of cotton fabric during the month of April, indicating that the full consumption for first half of 1929 will exceed 175,000,000 pounds. Late prices follow:

CORD			
Peeler, carded, 23/5/3	lb.	.47½	@ .48½
Peeler, carded, 23/4/3	lb.	.48½	@ .49½
Peeler, carded, 13/3/3	lb.	.45	@ .45½
Peeler, carded, 15/3/3	lb.	.45½	@ .46
Egyptian, carded, 23/5/3	lb.	.54	@ .54½
Egyptian, combed, 23/5/3	lb.	.58	@ .59
CHAFERS			
Carded, American 8 oz.	lb.	.40½	@ .41½
Carded, American, 10 oz.	lb.	.41¼	@ .42½
Carded, American, 12 oz.	lb.	.41½	@ .45
Carded, American, 14 oz.	lb.	.40	@ .46
LENO BREAKER			
Carded, American 8¼ oz.	lb.	.41	@ .46
Carded, American, 10¼ oz.	lb.	.41	@ .46
SQUARE WOVEN			
Carded, American, 17¼ oz. 23-11 ply	lb.	.47	@ .48
Carded, American, 17¼ oz. 10-ply	lb.	.40	@ .41

Sheetings

Sheetings eased off a little during the fortnight, the latest quotations by the Textile Brokers' Association, Inc., being as follows:

40-inch, 2.50-yard	yd.	—	@ .12¼
40-inch, 2.85-yard	yd.	.10⅝	@ .10¾
40-inch, 3.15-yard	yd.	.11½	@ .11⅝
40-inch, 3.60-yard	yd.	—	@ .09¼
40-inch, 3.75-yard	yd.	.08	@ .08¼
40-inch, 4.25-yard	yd.	.07	@ .07⅛

Ducks

Cotton ducks were reported to have been a little better during the second week of the past fortnight, but yardages were still unsatisfactory. Prices were steady, however, and little or no change was noticed among the different grades. The market was troubled by the appearance of some second-hand lots, giving the impression in some quarters of an easier market, but the lots so moved were not of sufficient size to have any serious reaction in first hand quarters. Belting ducks were among the goods in light demand at the close of the period. Latest price quotations were as follows:

Belting and Hose	lb.	.36	@ .37
Enameling	**lb.**	**.35**	**@ .36**
Single filling	lb.	.14½	@ .16½
Double filling	lb.	.17½	@ .18½

RECLAIMED RUBBER

Together with its record figure for the consumption of crude rubber, May probably saw a new high mark for one month's absorption of reclaim. The first half of 1929 has been the biggest six months in the history of the reclaimed rubber industry, and those manufacturers who expanded their plant facilities have been well justified. Price quotations during the past fortnight were practically unchanged on all grades and closed as follows:

High Tensile			
Super-Reclaim No. 1 Black	lb.	.12½	@ .13
Super-Reclaim No. 2 Black	lb.	.12	@ .12¼
High Tensile Red	lb.	.13	@ .13½
Shoe			
Unwashed	lb.	.07¼	@ .07½
Washed	lb.	.10	@ .10¼
Tube			
No. 1 (Floating)	lb.	.14	@ .14¼
No. 2 (compounded)	lb.	.11	@ .11½
Tires			
Black, washed		.09¾	@ .10¼
Black, unwashed		.07¾	@ .08¼
Black, selected tires	lb.	.08½	@ .09
Dark Gray	lb.	.10	@ .10½
Light Gray	lb.	.12	@ .12¼
White	lb.	.13	@ .13½
Truck, Heavy Gravity	lb.	.07	@ .07¼
Truck, Light Gravity	lb.	.07½	@ .07¾
Miscellaneous			
Mechanical Blends	lb.	.07	@ .07½
Red	lb.	.12½	@ .13

Scrap Rubber

Reclaiming plants have consumed approximately 145,000 tons of scrap rubber during the first six months of 1929, setting a new high record. Heavy collections have been responsible for some shading of price quotations during the past two weeks. Late prices follow:

(Prices to Consumer)

Auto tire peelings	ton	42.50	@ 45.00
Standard White auto	ton	47.50	@ 50.00
Mixed auto	ton	26.00	@ 27.00
Bicycle tires	ton	20.00	@ 22.50
Clean solid truck tires	ton	22.00	@ 24.00
Boots and shoes	cwt.	1.45	@ 1.50
Arctics, untrimmed	lb.	.00¾	@ .00⅞
Inner tubes, No. 1	lb.	.07¾	@ .08
Inner tubes, No. 2, compounded	lb.	.04¼	@ .04⅝
Inner Tubes, Red	lb.	.05¼	@ .05⅜
Air Brake Hose	ton	32.00	@ 34.00
Rubber Hose	ton	17.50	@ 20.00

CRUDE RUBBER

EXPECTATIONS of an approaching decrease in the rate of domestic consumption and uncertainty concerning the trend of Malayan shipments have combined to pull the price of crude rubber down more than a cent a pound during the past fortnight. Outside support has been largely discouraged, with the result that trading has become dull and without feature.

The amount of rubber invoiced to the United States has definitely declined, and stocks on hand in this country have dropped more than 10,000 tons between April 30 and May 31, according to the figures of the Rubber Manufacturers' Association. London stocks are becoming slightly higher, but are far below the figures of a year ago.

According to the Brookmire Economic Service, demand for crude rubber for the next two years is expected to be very heavy. This deduction is made because of the outlook of the tire business which, they say, is excellent at the present time. The Brookmire Service foresees a fairly stable condition in the rubber industry, but questions the advisability of extensive plant expansion.

Unconfirmed rumors still persist to the effect that the Ford interests are planning a tire factory on a site adjacent to the River Rouge plant of the Ford Motor Company, with an arrangement whereby the Firestone Tire & Rubber Company will operate it on a percentage basis. The requirements of the Ford factories call for a capacity of 30,000 tires a day for original equipment alone.

Prices on the New York outside market on June 17 were as follows:

Plantations—			
Ribbed Smoked Sheets—			
Spot-June	.20	@	.20¼
July-Sept.	.20⅛	@	.20¾
Oct.-Dec.	.21	@	.21¼
First Latex, crepe spot	.20½	@	.20¾
Amber Crepe, No. 2	.18¾	@	.19
Amber Crepe, No. 3	.18½	@	.18⅝
Amber Crepe, No. 4	.18¼	@	.18½
Brown Crepe, Clean, thin	.18¼	@	.18⅜
Brown Crepe, specky	.18½	@	.18¾
Liquid Latex, per gal.	1.00		
Paras—			
Up-river Fine	.22	@	.22¼
Up-river Medium	Nominal		
Up-river Coarse	.11½	@	.11¾
Acre Bolivian, fine	.22¾	@	.23
Caucro Ball, Upper	.11½	@	.11¾
Islands, fine	Nominal		
Centrals—			
Central, scrap		@	.13
Esmeraldas		@	.13
Balata—			
Block, Colombia	Nominal		
Block, Ciudad	.54	@	

LONDON MARKET

Standard Ribbed Smoked Sheets—Buyers			
Spot-June		@	10½d
July-Sept.	10½	@	10⅝d

SINGAPORE MARKET

Standard Ribbed Smoked Sheets—Sellers			
Spot		@	9¾d

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LATE RUBBER CHEMICAL PRICES

Accelerators—Colors—Softeners—Compounding Materials

NEW YORK, JUNE 17, 1929

WITH the end of June, the rubber chemical manufacturing industry has completed the greatest half year in its history. More than 270,000 tons of crude rubber have been consumed thus far this year, and the demand on suppliers of chemicals and compounding ingredients has been the heaviest that can be remembered. Factories which have expanded their production facilities are already finding their capacity none too large for the increasing quantity of orders from rubber factory centres.

The Bureau of Mines has recently reported that 248,790,000 pounds of carbon black were produced in 1928, the greater part of this going into the manufacture of automobile tires. It is expected that this figure will be considerably higher for the present year, due to the high rate of production that has been maintained at the country's tire factories thus far.

ACCELERATORS

Organic			
A-7	lb.	.55 @	.59
A-11	lb.	.62 @	.66
A-16	lb.	.57 @	.61
A-19	lb.	.58 @	.62
A-20	lb.	.64 @	.68
Aero-X	lb.	.60 @	.65
Aldehyde ammonia, crystals	lb.	.65 @	.70
Aniline oil, drums, f.o.b. works	lb.	.15 @	.16¼
Cryiene	lb.	.55 @	.65
paste	lb.	.45 @	.55
Di-Ortho-Tolylguanidine	lb.	.42 @	.52
Diphenylguanidine	lb.	.30 @	.36
Ethylidene aniline	lb.	.45 @	.47½
Formaldehyde Aniline	lb.	.34 @	.44
Accelerator 102	lb.		
Accelerator 552	lb.		
Accelerator 808	lb.		
Accelerator 883	lb.		
Heptene	lb.	.40 @	—
Hexamethylene-tetramine	lb.	.62½@	.65
Lithex	lb.	.18 @	.20
Methylenedianiline	lb.	.35 @	.45
Monex	lb.	3.25 @	—
Oxynone	lb.	.68 @	.80
Para-Nitrosodimethylaniline, f.o.b. works	lb.	.92 @	.96
Piperidine-Piperidyldithio-Carbamate	lb.	4.45 @	4.60
R & H 40	lb.	.40 @	.42½
R & H 50	lb.	.40 @	.42½
R & H 397	lb.	.75 @	.77½
Safex	lb.	1.20 @	1.25
Tensilac, No. 39	lb.	.50 @	.52½
Tensilac, No. 41	lb.	.50 @	.52½
Thermic F	lb.	.50 @	.55
Thiocarbanilide, drums	lb.	.26½@	.28½
Thionex	lb.		
Trimene	lb.	.75 @	—
base	lb.	1.20 @	—
Triphenylguanidine	lb.	.58 @	.62½
Ureka	lb.	.75 @	1.00
Vulcanex	lb.		
Vulcone	lb.		
Vulcanol	lb.		
Waxene	lb.	.30 @	.32
Z 88	lb.	.50 @	.60
Inorganic			
Lead, sublimed blue	lb.	.08¼@	—
Lead, white	lb.	.10½@	.12½
Litharge, domestic	lb.	.09 @	—
Magnesia, calcined, light	per 100 lb.	5.35 @	5.45
heavy	per 100 lb.	3.65 @	3.75

COLORS

Blacks (See Compounding Materials)			
Blues			
Prussian	lb.	.35 @	.40
Ultramarine	lb.	.06 @	.30
Browns			
Sienna, Italian	lb.	.05½@	.12½
Umber, Turkey	lb.	.04½@	.07
Greens			
Chrome, light	lb.	.27 @	.31
medium	lb.	.28 @	.31
dark	lb.	.31 @	.34
Chromium Oxide, bbl.	lb.	.31 @	.38
Reds			
Antimony			
crimson, 15/17	lb.	.44 @	.50
sulfur free	lb.	.52 @	.60
golden 15/17 F.S.	lb.	.20 @	.25
Indian English	lb.	.08 @	.12
Domestic (Maroon)	lb.	.08 @	.12
Oximony	lb.	.13¼@	—
Red oxide, pure	lb.	.10 @	.12
Venetian red	lb.	.05 @	.06
Vermillion, quicksilver, English	lb.	1.95 @	—
Whites			
Lithopone, Akeolith	lb.	.05 3/5@	.06
Lithopone, Azolith	lb.	.05¼@	.05¾
Lithopone, Vanolith	lb.	.05¾@	—
Titanox	lb.	.09½@	.10
Cal. Base Pigment	lb.	.10 @	.10½
Zinc Oxide—American Process			
American Azo:			
ZZZ (lead free)	lb.	.06½@	.07
ZZ (leaded)	lb.	.06⅝@	.06⅞
Zinc Oxide—French Process			
White seal	lb.	.11⅜@	—
Green seal	lb.	.10⅞@	—
Red Seal		.09⅞@	—
Yellows			
Chrome	lb.	.16½@	.17
Ocher, French medium	lb.	.02 @	.03
domestic	lb.	.01⅝@	.02

COMPOUNDING MATERIALS

Aluminum Flake	ton	21.85 @	24.50
Ammonia carbonate	lb.	.10½@	.12
Asbestine	ton	14.75 @	18.00
Barium carbonate	lb.	.03½@	.05
Barium Dust	lb.	.05 @	.06
Barytes southern off-color,	ton	12.00 @	18.00
Western prime white	ton	23.00 @	—
imported	ton	27.00 @	36.00
Basofor	lb.	.04½@	—
Blacks			
Arrow "Aerfloted"	lb.	.08½@	.12½
Bone Black	lb.	.07 @	.08½
Carbon, compressed	lb.	.08½@	.12½
Carbon, uncompressed	lb.	.08 @	.12
Drop Black	lb.	.06 @	.10
Fumonex	lb.	.06 @	.09
Gastex	lb.	.04½@	.08
Lamp Black	lb.	.12 @	.40
Micronex	lb.	.09 @	.13
Velvetex carbon	lb.	.04½@	.06
Blanc fixe dry f.o.b. works	lb.	.03½@	.03⅝
Carrara filler	lb.	.01¾@	.02
Catalpo (fact.)	lb.	.02 @	—
Chalk	ton	12.00 @	14.00
Clay, China, domestic	ton	8.00 @	9.00
Aerfloted Suprex	ton	10.00 @	22.00
Congaree, c. l. f.o.b. mine	ton	9.00 @	—
Mineral Flour, c. l. fob mine	ton	20.00 @	23.00
Tensulite		15.00 @	—
Glues, extra white	lb.	.22 @	.26
medium white	lb.	.20 @	.24
Magnesia, carbonate	lb.	.08¾@	.11
Mica, powdered	ton	65.00 @	80.00
Rotten Stone (powdered)	lb.	.02½@	.04½
Soapstone, powdered	ton	15.00 @	22.00
Starch, powdered	cwt.	3.30 @	3.70
Talc, domestic	ton	12.00 @	15.00
Whiting, commercial	cwt.	.85 @	1.00
English cliffstone	cwt.	1.50 @	—
Superfine	ton	10.00 @	12.00
Witco	ton	12.00 @	—
Wood pulp XXX	ton	45.00 @	—
Wood pulp X	ton	25.00 @	—
Zinc Carbonate	lb.	.09½@	.10½
Zinc Stearate	lb.	.24 @	.25

MINERAL RUBBER

Genasco (factory)	ton	50.00 @	52.00
Montezuma, solid	ton	28.00 @	36.00
Montezuma, granulated	ton	32.00 @	42.00
Paradura	ton	62.50 @	65.00
Pioneer, MR, solid	ton	42.00 @	45.00
Pioneer-granulated	ton	52.00 @	55.00
R & H Hydro-Carbon	ton	27.05 @	29.00
Robertson, MR, solid	ton	34.00 @	80.00
M.R. (gran)	ton	38.00 @	80.00

SOFTENERS

Acids			
Nitric, 36 degrees	cwt.	5.00 @	5.25
Sulfuric, 60 degrees	ton	10.50 @	11.50
66 degrees	ton	15.00 @	16.00
Tartaric, crystals	lb.	.37 @	.38
Acids, Fatty			
Stearex	lb.	.15½@	.20
Stearic, double pressed	lb.	.17 @	.22
Alkalies			
Caustic soda, 76%	cwt.	3.76 @	3.91
Soda ash, 58% C.L.	cwt.	1.40 @	
Oils			
Corn, refined, bbls.	lb.	.11 @	.11½
Cottonseed, crude		.08½@	.08¾
Cycline	gal.	.27 @	.34
Degras (c.l. 100 bbls.)	lb.	.03¾@	—
Less c. l. (10-25 bbls.)	lb.	.04 @	—
Lots less than 10 bbls.	lb.	.04¼@	.04½
Fluxrite	lb.	.05 @	.06
Hexalin	lb.	.60 @	—
Acetate	lb.	.70 @	—
Linseed, Raw C.L. bbl.	lb.	.09½@	.10
Palm Lagos	lb.	.07¼@	.07½
Niger	lb.	.07¾@	.08
Vansuliol	lb.	.10½@	—
Para-Flux	gal.	.17 @	—
Petrolatum, white	lb.	.08 @	.08½
dark amber	lb.	.03¾@	.03¾
Pine, steam distilled	gal.	.65 @	.70
Witco Softener (f.o.b. works)	lb	.02 @	—
Resins and Pitches			
Pitch, Burgundy	lb.	.06½@	.07½
coal tar	gal.	.05½@	.06
pine, 200 lb. gr. wt.	bbl.	9.00 @	10.00
Rosin, grade K, 280 lb. bbl.		8.55 @	—
Pigmentar	gal.	.33 @	.41
Solvenol, drums	gal.	.48 @	.50
Tarol, drums	gal.	.30 @	.35
Tar Retort, 50 gal.	bbl.	12.50 @	13.00
Solvents			
Acetone, pure	lb.	.13 @	
Alcohol denatured, No. 1 bbls.	gal.	.37½@	.44½
Benzol, 90%	gal.	.28 @	—
Carbon bisulphide	lb.	.06½@	.06¼
Carbon tetrachloride	lb.	.06¼@	.07
Motor gasoline, steel bbls.	gal.	.17 @	—
Naptha, solvent	gal.	.35 @	.40
Turpentine, spirits	gal.	.60 @	.64
wood	gal.	.50 @	.54
Waxes			
Beeswax	lb.	.56 @	.58
Carnauba	lb.	.33 @	—
Ceresin, white	lb.	.10 @	.11
Montan, crude	lb.	.07 @	.07½
Ozokerite, black	lb.	.24 @	.25
green	lb.	.26 @	.30
Paraffin (c. l.—f.o.b. N. Y.)			
Yellow crude scale	lb.	.03¾@	
White crude scale 124/126	lb	.04 @	
Refined, 125/127	lb.	.05¾@	
Refined, 128/130	lb.	.05½@	
Refined, 135/137	lb.	.07¾@	
Refined, 138/140	lb.	.08¼@	
Miscellaneous			
RSL Mold Solution	gal.	.75 @	1.00

ANTI-OXIDANTS

Albasan	lb.	.70 @	.75
Antox	lb.		
Neozone	lb.		
Oxynone	lb.	.68 @	.80
Resistox	lb.	.54 @	.57
Stabilite	lb.	.64 @	—
VGB	lb.	.55 @	.66

SUBSTITUTES

Black	lb.	.08 @	.14
White	lb.	.10 @	.16
Brown	lb.	.08 @	.15

VULCANIZING INGREDIENTS

Sulfur Chloride (drums)	lb.	.03¼@	.03½
Sulfur flour, Refined, 100% pure (bags)	cwt.	2.40 @	2.75
Commercial (bags)	cwt.	1.75 @	2.10

TIRES & TUBES
CRUDE RUBBER

STATISTICAL SECTION

AUTOMOBILES
GASOLINE

WHILE the statistical position of the rubber market may appear improved through the reduction of stocks of crude rubber on hand and afloat to the United States from 163,068 tons at the end of April to 152,596 tons at the end of May, this sharp reduction may be explained as due rather to incomplete reports from rubber manufacturers and dealers. Imports and consumption during May were practically balanced, and re-exports from the United States did not greatly exceed 3,000 tons. While the figures for American stocks of crude rubber may be accurate over a period of months, it is not always possible to compile an exact figure as of one certain day.

The record March consumption of crude rubber by the domestic industry was exceeded by a new peak in April, and this, in turn, has been replaced by the May figure of 49,233 tons. Production schedules at rubber factories are generally believed to have been let down somewhat during the present month, and a decline in crude rubber consumption is, therefore, expected for June.

The amount of crude rubber being invoiced to the United States seems to have definitely dropped to a level of around 9,000 tons a week, despite larger shipments from the Dutch East Indies in the past few weeks. This compares with the shipments of the first three months of the year, which averaged about 12,000 tons a week.

Latest figures covering imports and exports from the leading producing and consuming countries have been added to the appropriate tables in this section.

PLAN OF THE SECTION

The statistics included in this section have been chosen for their constant importance to the rubber industry. The tables are reprinted in the same relative position in every issue, each table being kept current by the addition of new figures as soon as they become available. The section accordingly affords the most up-to-date, complete and convenient statistical service in the industry.

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U. S. Imports and Exports of Crude Rubber

YEARS	Gross Imports: Long Tons	Gross Imports: Total Declared Value	Gross Imports: Average Declared Value per pound Cents	Re-exports: Long Tons	Re-exports: Total Declared Value	Re-exports: Average Declared Value per pound Cents	Net Imports: Long Tons
1921	185,394	73,772,677	17.76	5,716	2,414,924	18.86	179,678
1922	301,076	101,843,188	15.10	4,809	1,921,828	17.84	296,267
1923	309,144	185,060,304	26.72	8,772	5,672,319	28.87	300,372
1924	328,056	174,231,331	23.71	10,309	6,057,637	26.23	317,747
1925	396,642	429,705,014	48.36	14,827	19,847,753	59.76	381,815
1926	413,338	505,817,807	54.63	17,671	22,470,583	56.77	395,667
1927	426,258	339,874,774	35.60	27,775	24,735,488	39.76	398,483
1928	439,731	244,854,973	25.03	32,159	18,128,361	25.17	407,572
1926:							
July	35,820	33,061,281	41.20	1,554	1,743,854	50.09	34,266
Aug.	27,400	24,670,752	40.21	1,318	1,339,563	45.38	26,082
Sept.	37,112	32,625,032	39.25	1,437	1,519,870	47.20	35,675
Oct.	29,746	25,320,558	38.49	1,366	1,316,270	43.03	28,110
Nov.	39,155	34,890,536	39.78	1,482	1,411,517	42.51	37,673
Dec.	37,754	33,261,366	39.33	1,904	1,841,305	43.16	35,850
1927:							
Jan.	43,340	36,753,719	37.86	1,525	1,444,734	42.28	41,815
Feb.	28,337	23,110,257	36.41	2,451	2,277,297	41.47	25,886
Mar.	35,515	28,693,016	36.07	2,763	3,249,665	52.50	32,752
Apr.	46,202	37,321,505	36.06	1,575	1,428,425	40.48	44,627
May	36,518	30,984,377	37.88	2,782	2,501,562	40.14	33,736
June	33,045	27,850,014	37.62	1,775	1,550,592	39.00	31,270
July	37,677	31,678,259	37.53	1,958	1,560,853	35.59	35,719
Aug.	32,810	26,396,931	35.92	1,809	1,382,768	34.12	31,001
Sept.	33,301	25,314,412	33.94	3,500	3,036,929	38.74	29,801
Oct.	30,184	22,163,282	32.78	2,513	2,042,713	36.29	27,67[illegible]
Nov.	28,592	27,395,428	31.69	2,469	2,014,196	36.43	26,123
Dec.	30,737	22,213,574	32.26	2,655	2,245,754	37.77	28,082
1928:							
Jan.	39,107	30,278,444	34.56	1,988	1,734,990	38.95	37,119
Feb.	33,663	27,763,655	36.82	2,738	2,229,589	36.35	30,925
Mar.	40,611	32,103,042	35.29	3,718	2,587,435	31.07	36,893
Apr.	37,935	27,287,266	32.11	2,272	1,415,024	27.80	35,663
May	31,059	19,058,672	27.39	2,399	1,386,307	25.80	28,660
June	27,765	14,121,219	22.71	2,621	1,400,697	23.86	25,144
July	31,258	14,144,765	20.20	3,087	1,451,446	20.99	28,171
Aug.	31,204	12,860,150	18.39	2,377	1,084,646	20.37	28,827
Sept.	39,835	16,512,019	18.50	3,038	1,384,148	20.34	36,797
Oct.	44,058	18,200,332	18.44	2,405	1,085,407	20.15	41,653
Nov.	36,519	14,878,441	18.19	2,788	1,207,089	18.52	33,731
Dec.	43,511	17,580,966	18.04	2,788	1,165,743	19.00	40,773
1929:							
Jan.	57,564	22,872,943	17.74	3,663	1,773,401	21.61	53,901
Feb.	64,265	24,760,111	17.20	2,955	1,374,783	20.77	61,310
Mar.	50,604	20,380,905	17.98	4,218	2,094,037	22.16	46,386
Apr.	55,725	25,542,726	20.46	3,293	1,624,237	22.02	52,432
May*	44,858	21,205,813	21.10				
June							

*Receipts at New York and Massachusetts.

U. S. Consumption of Crude Rubber

(Rubber Manufacturers' Association statistics raised to 100 per cent—All figures in long tons)

Figures on Monthly Basis

	1922	1923	1924	1925	1926	1927	1928	1929
Jan.	16,938	30,106	29,058	29,638	32,196	31,518	34,403	43,002
Feb.	14,767	30,149	25,736	19,761	31,136	30,137	33,702	41,594
Mar.	21,408	36,629	28,385	33,498	32,936	36,141	35,688	44,730
Apr.	19,294	29,085	27,129	34,139	32,696	35,871	32,772	47,521
May	23,246	36,155	25,845	35,322	29,364	34,592	37,333	49,233
June	31,713	24,272	22,753	35,822	28,598	33,801	37,676	
July	24,522	17,685	23,396	36,053	27,577	29,219	37,407	
Aug.	29,631	20,359	28,982	35,909	34,533	33,460	42,927	
Sept.	24,410	17,594	31,497	31,691	32,904	27,214	39,882	
Oct.	26,881	21,321	31,520	29,047	29,836	26,790	40,857	
Nov.	24,950	20,437	27,289	28,853	28,080	26,792	37,461	
Dec.	25,070	31,902	27,199	28,748	26,293	25,492	31,232	
Totals	282,560	305,694	328,769	388,481	366,149	371,027	441,340	

Figures on Quarterly Basis

Quarter	1922	1923	1924	1925	1926	1927	1928	1929
Jan./Mar.		96,776	87,609	95,263	94,301	99,216	103,558	128,565
Apr./June	127,360	89,493	75,674	104,099	87,109	103,242	103,500	
July/Sept.		55,621	83,813	99,493	93,793	89,210	117,573	
Oct./Dec.	155,067	63,617	92,656	85,789	83,212	80,860	117,597	
Totals	282,427	305,507	339,752	384,644	358,415	372,528	442,227	128,565

Note—The Rubber Association estimates its monthly rubber consumption figures to be 90 per cent complete. Up until 1925 the quarterly figures were likewise estimated to be 90 per cent complete; beginning with 1925 an estimate of 92 per cent completeness has been used. These estimates have been used in raising the figures in this table to 100 per cent. The quarterly figures are generally regarded as the most authentic; the monthly figures may be accepted as preliminary.

Rubber Invoiced to the U. S.

(Reported by American Consuls—Quantities in Long Tons)

During the Week Ended	From Br. Malaya	From Ceylon	From Dutch East Indies	From London & Liverpool	Total
Mar. 16	7,370	572	1,977	9	9,928
Mar. 23	8,757	754	1,673	.....	11,184
Mar. 30	7,333	923	1,596	45	9,897
Apr. 6	9,234	1,037	1,975	10	12,256
Apr. 13	7,061	458	1,935	.....	9,454
Apr. 20	6,863	740	1,886	112	9,601
Apr. 27	7,808	1,212	1,723	108	10,851
May 4	6,573	888	2,374	166	10,001
May 11	6,798	852	1,148	213	9,011
May 18	8,026	1,011	2,028	126	11,191
May 25	7,020.	558	2,070	115	9,763
June 1	6,024	759	2,044	45	8,872
June 8	6,117	1,102	1,808	68	9,095

Daily Spot Closing Prices of Ribbed Smoked Sheet Rubber—*New York Market, in Cents per Pound*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Ave
1926																																
November	41¼	—	41	41¼	41½	41½	—	41½	41½	42¾	41¼	41½	—	—	40¾	40⅝	40½	39½	38¾	39	—	38	38	38½	—	38	37⅞	—	37	37	—	38½
December	36¾	37½	37½	37½	—	37	37	37½	37	37	37½	—	37½	37¾	37¾	38	38	—	38	38	38¼	38½	38½	39	—	—	39	39	38½	38¾	—	38¼
1927																																
January	—	—	38½	39	39¼	39⅝	40	40¼	40	40⅜	40	40⅜	40	40	39¾	39⅝	39¾	38¾	38⅝	38½	38¾	38⅝	38	38¾	38	38	38½	38	38	38	38½	38⅜
February	37⅝	37⅜	37½	37½	—	—	37⅞	37⅞	37⅞	38	—	—	—	38¼	38	38	38⅜	38⅜	38⅜	38⅜	38⅜	38⅜	38⅜	39	39	39	39	39	39	39	39	38¾
March	39¾	39¾	40	40¼	41	40¾	40¾	40¾	40¾	40¾	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41½	41½	41½	41½	41½	41½	41½	41½	41½	41½	41½	41½	41½	41½	41½
April	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	40¾	40¾	40¾	40¾	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼
May	—	40¾	40¾	41	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼
June	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾
July	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾
August	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾
Sept.	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾
Oct.	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾
Nov.	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾
Dec.	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾
1928																																
January	—	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾
February	87½	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾
March	29	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾
April	17½	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼
May	19½	18½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½
June	—	18½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½
July	—	18½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½
August	19½	—	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½	19½
September	—	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½
October	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½
November	18¾	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½
December	17¾	—	17¾	17¾	17¾	17¾	17¾	18¼	18	18	18	18	—	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
1929																																
January	—	18¼	18¼	18¼	18¼	18¼	18¼	18¾	18¾	18¾	18¾	18¾	18¾	18¾	18¾	18¾	18¾	18¾	18¾	18¾	18¾	18¾	18¾	18¾	18¾	18¾	18¾	18¾	18¾	18¾	18¾	18¾
February	22	—	21	22	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼	22¼
March	26	26	26	26	26	26	26	26	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	26½	26½	26½	26½	26½	26½	26½
April	23	23¼	22¼	22¾	22½	22½	22½	20¼	22½	22½	22½	22½	22½	22½	22½	22½	21½	21½	21½	21½	21½	21½	21½	21½	21½	22½	22¼	23	—	—	—	24½
May	19¾	19¾	19¾	19¾	19¾	19¾	20¼	21¼	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19¾	19¾	19¾	19¾	19¾	19¾	19¾	21½
June	21¼	—	21¾	21¾	21¾	21¾	21¾	21¾	—	20⅝	20½	20½	20½	20⅝	20¼	—	20¼	20¼	20¼	23½	22⅝	22⅝	21⅝	21¾	21¾	21¾	21¼	21¼	21¼	—	21¼	21½

Average Spot Closing Prices—Ribbed Smoked Sheets

(New York Market)

Average Price per Pound for Years 1910-1921

Year	Cents	Year	Cents	Year	Cents
1910	206.60	1914	65.33	1918	60.15
1911	141.30	1915	65.85	1919	48.70
1912	121.60	1916	72.50	1920	36.30
1913	82.04	1917	72.23	1921	16.36

Average Monthly Price per Pound Since 1922

Months	1922 Cents	1923 Cents	1924 Cents	1925 Cents	1926 Cents	1927 Cents	1928 Cents	1929 Cents
Jan.	18.82	32.73	25.86	36.71	79.50	38.75	40.25	20.14
Feb.	16.12	35.14	25.29	36.01	62.25	38.25	32.75	23.97
Mar.	14.53	34.21	22.83	41.00	59.00	41.04	26.82	24.55
Apr.	15.99	32.48	22.51	43.64	51.25	40.86	18.97	21.18
May	15.25	27.39	18.89	58.47	47.75	40.76	18.99	21.46
June	15.11	26.88	18.81	77.26	42.50	37.25	19.59	——
July	14.67	26.10	22.16	103.16	41.03	34.87	19.40	——
Aug.	13.93	28.84	26.17	82.99	38.50	35.12	19.46	——
Sept.	14.44	28.95	27.56	88.88	41.00	33.67	18.47	——
Oct.	19.78	26.93	31.13	98.01	42.50	34.32	18.83	——
Nov.	23.88	27.14	34.33	104.80	38.50	37.58	18.26	——
Dec.	27.42	26.60	37.88	98.51	38.25	40.63	17.97	——
Average for Year	17.50	29.45	26.20	72.46	48.50	37.72	22.48	——

London Closing Prices of Ribbed Smoked Sheet

(In Pence Per Pound)

Day	Mar.	Apr.	May	June	Day	Mar.	Apr.	May	June
1	12⅞	11⅛	9⅞	10¾	17	—	10¼	11⅝	10½
2	13½	11¼	10	—	18	12	10	—	—
3	—	11¼	10	10⅞	19	11⅞	10	—	—
4	13⅛	10⅞	—	10⅝	20	11½	10⅛	—	—
5	12¾	10⅞	—	10⅝	21	11½	—	11½	—
6	12¾	11	10⅛	10½	22	11½	9⅞	11⅜	—
7	12⅝	—	10⅜	10⅝	23	11¼	10⅛	10½	—
8	12⅝	11	10⅝	10⅝	24	—	10¼	10⅝	—
9	12⅝	11	—	—	25	11⅛	9⅞	10½	—
10	—	11	10½	10½	26	11	10	—	—
11	12¾	10⅞	10⅝	10⅝	27	11⅛	10	10⅜	—
12	12⅝	10⅞	—	10⅝	28	11	—	10½	—
13	12⅝	10⅜	11	10⅝	29	—	9⅞	10¾	—
14	12¼	—	11⅜	10½	30	—	9⅞	10⅞	—
15	12¼	10¾	11½	10½	31	—	—	10¾	—
16	12	10⅜	11⅜	—					

Average Monthly Price Per Pound

Month	1927 Pence	1928 Pence	1929 Pence	Month	1927 Pence	1928 Pence	1929 Pence
Jan.	19.410	19.310	9.942	Aug.	17.202	9.300	——
Feb.	19.021	15.713	11.875	Sept.	16.293	8.530	——
Mar.	20.125	12.736	12.135	Oct.	16.366	8.807	——
Apr.	19.897	8.864	10.490	Nov.	18.159	8.596	——
May	19.769	8.845	10.717	Dec.	19.690	8.570	——
June	17.880	9.293	——	Average			
July	16.770	9.312	——	for Year	18.375	10.656	——

Spot Closing Cotton Prices

(Middling Upland Grade—New York Market)

Recent Daily Price Per Pound

Day of Month	May	June	Day of Month	May	June	Day of Month	May	June
1	19.55	18.40	11	19.65	18.80	21	19.90	——
2	19.65	——	12	——	18.95	22	19.70	——
3	19.75	18.75	13	19.80	19.05	23	19.70	——
4	18.90	18.95	14	19.65	18.85	24	19.45	——
5	——	19.05	15	19.60	18.80	25	19.10	——
6	18.65	19.00	16	19.75	——	26	——	——
7	18.65	18.95	17	19.70	18.90	27	18.85	——
8	19.60	18.95	18	19.85	——	28	18.95	——
9	19.60	——	19	——	——	29	18.70	——
10	19.55	18.80	20	19.90	——	30	——	——
						31	18.50	——

Average Monthly Price Per Pound

Month	1927 Cents	1928 Cents	1929 Cents	Month	1927 Cents	1928 Cents	1929 Cents
Jan.	13.42	19.12	20.22	Aug.	20.04	19.28	——
Feb.	14.10	18.40	20.21	Sept.	21.95	18.67	——
Mar.	14.32	19.38	20.19	Oct.	20.22	19.62	——
Apr.	14.75	20.63	20.29	Nov.	20.22	19.84	——
May	16.07	21.58	19.41	Dec.	19.58	20.22	——
June	16.85	21.50	——	Average			
July	18.00	21.36	——	for Year	17.49	19.97	——

Stock of Crude Rubber in the U. S.

(All Quantities in Long Tons)

At	ON HAND			AFLOAT			ON HAND AND AFLOAT		
End of	1927	1928	1929	1927	1928	1929	1927	1928	1929
Jan.	76,172	110,244	76,342	45,312	41,256	78,596	121,484	151,500	154,938
Feb.	91,186	108,955	90,058	42,166	43,316	63,825	133,352	152,271	153,883
March	85,740	114,061	100,536	49,600	39,324	56,476	135,340	153,385	157,012
April	92,757	113,083	107,659	38,963	33,986	55,409	131,720	147,069	163,068
May	94,563	105,356	97,192	44,181	34,374	55,404	138,744	139,730	152,596
June	89,250	90,198		47,233	40,001		136,483	130,119	
July	98,469	43,242		40,687	42,304		139,056	125,546	
Aug.	96,148	68,994		40,937	51,875		137,085	120,869	
Sept.	97,829	68,851		37,966	48,566		135,793	117,417	
Oct.	97,452	66,421		42,804	41,571		140,256	107,992	
Nov.	101,034	61,956		37,076	68,119		138,110	130,075	
Dec.	100,130	66,166		47,938	68,764		148,068	134,930	

(Rubber Manufacturers' Association figures raised to 100%.)

Stock of Crude Rubber in London

(No. of tons in Wharves and Warehouses, including Latex)

At end of:	1921	1922	1923	1924	1925	1926	1927	1928	1929
Jan.	56,573	67,252	73,498	57,460	27,172	9,994	54,994	66,524	25,191
Feb.	59,439	67,623	70,483	56,732	23,425	10,004	58,826	62,964	25,554
Mar.	63,913	66,670	63,438	55,647	18,104	13,127	63,055	58,272	28,214
Apr.	68,759	68,637	58,770	54,959	12,949	18,773	66,897	53,425	31,368
May	70,403	70,146	54,439	51,615	5,895	20,384	67,169	44,628	
June	69,408	71,597	51,050	51,115	5,318	23,984	63,902	38,756	
July	71,065	71,515	49,937	52,073	4,258	27,727	63,717	35,429	
Aug.	73,211	72,112	58,427	49,700	4,619	30,165	64,491	32,084	
Sept.	72,175	70,977	54,523	44,011	5,453	35,077	68,236	31,440	
Oct.	69,229	68,536	58,891	37,523	5,086	42,138	69,569	24,207	
Nov.	70,786	68,548	60,074	33,593	3,869	44,057	67,050	17,775	
Dec.	69,792	72,299	60,246	29,488	5,697	48,918	63,793	19,815	

At End of Recent Weeks

	First Saturday	Second Saturday	Third Saturday	Fourth Saturday	Fifth Saturday
1928					
June	43,716	42,683	41,185	40,083	38,611
July	36,915	35,925	35,238	35,445	——
August	34,294	33,649	32,591	32,815	——
September	31,933	31,477	32,110	31,884	31,462
October	29,525	27,370	26,477	24,240	
November	22,919	21,494	20,194	18,724	——
December	16,855	16,517	17,669	18,821	19,727
1929					
January	21,953	23,016	23,547	24,423	——
February	25,389	25,413	24,757	25,005	——
March	25,441	25,920	26,442	27,656	28,077
April	28,934	30,446	30,503	31,213	
May	31,580	31,127	30,955	30,893	——
June	31,539	31,635			

Rubber in Singapore and Penang

(Stocks held by Dealers—Quantities in Long Tons)

End of	1927	1928	1929	End of	1927	1928	1929
Jan.	25,440	25,868	29,617	July	22,558	18,663	——
Feb.	26,766	22,867	32,373	Aug.	25,764	18,971	——
Mar.	27,844	20,538	29,437	Sept.	25,178	14,898	——
Apr.	24,543	16,946	26,474	Oct.	25,790	12,149	——
May	25,133	17,437	——	Nov.	28,369	29,188	——
June	21,898	18,207	——	Dec.	25,798	32,895	——

Rims Inspected and Passed in U. S.

(Tire and Rim Association Reports)

	Total	Per Cent Balloons		Total	Per Cent Balloons
1923	23,140,620	0.6	1926	24,199,524	78.8
1924	21,863,311	19.7	1927	19,700,003	79.1
1925	26,001,664	66.8	1928	24,247,282	81.6
1928			1929		
July	2,209,692	85.9	January	1,835,207	79.4
August	2,318,898	80.2	February	2,265,024	80.8
September	2,315,604	76.9	March	2,613,389	80.4
October	2,114,611	72.2	April	2,729,899	81.3
November	1,213,245	66.4	May	2,574,224	76.5
December	1,101,198	74.7	June		

U. S. Consumption of Gasoline

(In Barrels of 42 Gallons)

MONTHS	1925	1926	1927	1928	1929
January	14,386,000	17,582,000	17,888,000	20,938,000	22,602,000
February	13,210,000	15,814,000	18,240,000	21,136,000	22,776,000
March	14,890,000	19,302,000	22,464,000	24,041,000	28,495,000
April	19,013,000	20,848,000	23,371,000	25,712,000	32,019,000
May	20,459,000	24,213,000	26,579,000	27,355,000	
June	20,724,000	23,803,000	27,799,000	29,022,000	
July	22,879,000	24,752,000	29,784,000	30,960,000	
August	22,323,000	26,912,000	29,779,000	33,148,000	
September	20,177,000	22,929,000	28,409,000	29,691,000	
October	19,826,000	23,973,000	25,497,000	30,610,000	
November	18,024,000	20,618,000	24,400,000	26,222,000	
December	17,954,000	21,419,000	23,718,000	26,644,000	
TOTAL	223,865,000	262,165,000	297,928,000	327,932,000	

U. S. Tire and Tube Statistics

(All Figures Represent Thousands)

AUTOMOBILE CASINGS

Figures for Recent Years

	1922	1923	1924	1925	1926	1927	1928
Production	40,932	45,259	51,633	60,845	61,237	64,439	77,944
Shipments	39,987	45,204	50,120	59,262	59,002	64,059	74,296
Inventory[2]	6,132	5,772	7,427	8,142	10,456	10,264	13,624

Figures for Recent Months

	PRODUCTION			SHIPMENTS			INVENTORY		
	1927	1928	1929	1927	1928	1929	1927	1928	1929
Jan.	4,965	5,358	6,722	4,932	5,394	6,626	10,432	9,949	13,712
Feb.	5,095	6,363	6,912	4,458	5,031	5,282	11,075	11,721	15,495
Mar.	6,276	6,819	7,519	5,701	5,731	6,708	11,563	12,389	16,351
Apr.	6,299	6,178	7,884	5,701	5,812	7,294	12,122	12,717	16,929
May	6,151	6,759		5,657	6,457		12,462	13,024	
June	6,202	6,692		6,253	7,117		12,462	12,162	
July	5,087	6,498		5,973	7,895		11,326	11,157	
Aug.	5,752	7,469		6,393	8,403		10,721	10,034	
Sept.	4,822	6,802		5,717	7,145		9,722	9,765	
Oct.	4,773	7,326		4,799	5,717		9,665	11,520	
Nov.	4,502	6,075		4,306	4,998		10,136	12,579	
Dec.	4,497	5,605		4,165	4,591		10,264	13,624	

AUTOMOBILE INNER TUBES

Figures for Recent Years

	1922	1923	1924	1925	1926	1927	1928
Production	50,850	60,116	70,706	82,614	76,618	70,823	80,180
Shipments	49,673	59,072	68,016	81,004	71,591	72,896	77,127
Inventory[2]	7,643	8,425	11,052	11,313	16,200	13,692	16,117

Figures for Recent Months

	PRODUCTION			SHIPMENTS			INVENTORY		
	1927	1928	1929	1927	1928	1929	1927	1928	1929
Jan.	5,337	5,441	6,517	6,016	6,072	7,242	15,585	12,982	15,386
Feb.	5,658	6,895	6,769	5,120	5,431	5,278	16,075	14,650	16,999
Mar.	7,184	6,231	7,466	6,157	5,731	6,737	17,096	15,573	17,750
Apr.	7,373	6,661	7,634	6,359	5,702	7,164	17,801	16,638	18,134
May	6,737	7,168		6,140	6,300		18,389	17,702	
June	6,306	6,953		6,832	7,136		17,858	17,159	
July	5,284	6,674		7,070	8,729		16,004	14,974	
Aug.	6,480	8,343		7,983	9,350		14,664	13,931	
Sept.	5,651	7,103		6,758	7,154		13,511	13,543	
Oct.	5,065	6,929		5,024	5,662		13,539	15,285	
Nov.	4,775	5,592		4,723	5,002		13,585	15,743	
Dec.	4,969	5,184		4,712	4,858		13,692	16,117	

(1) Rubber Manufacturers' Association figures, raised to 100%. The Association estimates its figures to be 75% representative or complete when issued and that basis has been accepted when preparing the statistics in this table.

(2) Held by manufacturers at end of period indicated.

Automobile Production

	United States			Canada			
	Total	Passenger Cars	Trucks	Total	Passenger Cars	Trucks	Grand Total
1922	2,547,208	2,302,923	244,285	102,053	94,904	7,149	2,649,261
1923	4,020,255	3,631,728	388,527	146,438	129,228	17,210	4,166,693
1924	3,600,918	3,203,049	397,869	135,246	117,765	17,481	3,736,164
1925	4,265,704	3,760,459	505,245	161,389	139,311	22,078	4,427,093
1926	4,298,799	3,808,753	490,046	205,092	164,483	40,609	4,503,891
1927							
July	268,474	236,866	31,608	10,987	8,719	2,268	279,461
Aug.	308,807	274,378	34,429	12,526	10,139	2,387	321,333
Sept.	260,420	226,440	33,980	11,262	8,681	2,581	271,682
Oct.	219,712	183,041	36,671	7,791	6,236	1,555	227,503
Nov.	134,381	109,742	24,639	6,617	5,173	1,444	140,998
Dec.	133,178	105,784	27,394	3,435	2,277	1,158	136,613
TOTAL	3,393,887	2,938,868	453,019	179,426	146,870	32,556	3,573,313
1928							
Jan.	225,039	199,032	26,007	8,463	6,705	1,758	282,502
Feb.	323,368	290,830	32,358	12,504	10,315	2,189	335,872
March	412,825	371,408	41,417	9,724	7,478	2,246	422,549
April	409,948	364,877	45,071	24,240	20,546	3,694	434,188
May	425,990	375,798	50,192	33,942	29,764	4,178	459,932
June	396,967	356,439	40,528	28,399	25,341	3,058	425,366
July	390,445	237,933	52,512	25,226	20,122	5,104	415,671
Aug.	458,429	400,689	57,740	31,245	24,274	6,971	489,674
Sept.	413,722	358,872	54,850	21,193	16,572	4,621	434,915
Oct.	397,096	339,976	57,120	18,536	13,016	5,520	415,632
Nov.	256,936	217,256	39,680	11,769	8,154	3,615	268,705
Dec.	233,135	205,144	27,991	9,425	6,734	2,691	242,560
TOTAL	4,357,384	3,826,613	530,771	242,382	196,737	45,645	4,599,944
1929							
Jan.	402,154	350,617	51,537	21,501	17,164	4,337	423,655
Feb.	466,084	407,589	58,495	31,287	28,486	2,801	497,371
March	584,733	515,266	69,559	40,621	32,833	7,788	625,354
April	620,656	538,679	81,977	41,901	34,392	7,509	662,557
May							
June							

Exports of Crude Rubber from Principal Producing Countries

(Long Tons)

	BRITISH MALAYA[1]							DUTCH EAST INDIES[3]						
	Gross Exports	Gross Exports Minus Imports	Imports	Ceylon[2]	India & Burma[3]	Sarawak[4]	British North Borneo[3]	Siam[4]	Java & Madura	Sumatra E. Coast	Other D.E.I.	Indo-China[3]	Amazon Valley	All Other[4]	World Total[7]
1923	252,016	70,432	181,584	39,971	6,416	5,705	4,237	1,718	32,930	46,344	57,822	5,067	16,765	7,856	406,955
1924	259,706	108,524	151,182	39,997	7,697	6,699	4,621	2,962	42,446	54,497	80,347	6,688	23,165	9,065	429,366
1925	316,825	158,022	158,803	49,566	10,082	5,424	5,377	5,377	46,757	65,499	120,626	7,881	25,298	13,797	517,523
1926	391,328	151,243	240,085	58,962	9,874	9,155	6,079	4,027	52,186	71,413	121,231	8,203	24.298	16,017	621,530
1927	371,322	182.845	188.477	55.356	11.321	10,923	6,582	5.472	55,297	77.815	142.171	8.645	28,782	15.633	606.474
1928	409,430	149,787	259,643	57,267	10,790	10,087	6,698	4,813	58,848	82,511	121,770	9,548	21,129	10,690	653,794
1927:															
Apr.	29,041	13,069	15,972	3,349	723	984	452	526	4,666	5,581	10,197	557	2,451	1,520	46,928
May	31,393	15,491	15,902	3,124	760	786	415	348	5,430	5,529	13,410	586	2,460	1,207	49,957
June	32,607	14,706	17,901	3,348	856	1,100	539	409	4,818	5,518	9,109	772	889	1,731	46,990
July	23,947	12,697	11,250	4,018	827	859	544	333	4,771	6,142	11,566	519	1,757	1,113	43,699
Aug.	30,371	17,105	13,266	5,357	688	1,133	623	546	4,355	6,682	12,440	716	1,928	969	48,708
Sept.	29,835	12,095	17,740	4,911	479	645	566	498	3,635	5,957	9,853	497	2,072	1,213	48,066
Oct.	29,846	15,801	14,045	5,245	802	721	591	542	3,810	7,755	13,633	775	2,752	939	51,520
Nov.	28,277	19,860	8,417	4,464	1,277	1,241	591	600	4,127	6,587	14,395	683	2,369	1,627	46,378
Dec.	32,185	17,865	14,320	4,130	1,395	946	592	664	5,768	7,878	13,438	1,191	3,340	1,444	55,101
1928:															
Jan.	27,789	16,618	11,171	3,830	1,605	842	581	525	4,851	7,988	11,774	1,100	2,273	1,025	47,565
Feb.	28,848	12,911	15,937	4,947	1,081	667	581	536	4,052	6,757	8,630	787	1,612	1,276	46,860
Mar.	27,879	10,508	17,371	3,683	775	645	581	269	3,999	5,825	9,690	700	2,750	1,211	47,499
Apr.	20,139	9,335	10,804	3,233	789	630	494	258	3,993	5,040	5,499	736	1,014	1,323	33,810
May	26,483	10,350	16,133	3,091	654	842	494	241	4,943	5,355	10,347	717	2,602	1,135	45,994
June	22,994	16,168	6,826	3,107	963	926	494	451	5,419	5,863	13,655	725	1,399	960	40,788
July	30,481	13,383	17,098	5,129	1,043	905	593	366	5,602	7,566	11,594	698	1,264	873	52,731
Aug.	35,674	15,114	20,560	5,720	398	1,227	593	544	5,668	7,438	11,893	712	1,732	450	56,936
Sept.	29,769	11,239	18,530	4,675	457	938	594	447	4,956	6,536	9,863	969	1,614	494	50,073
Oct.	24,476	12,603	11,873	3,999	864	949	564	457	5,295	7,474	10,124	513	1,399	732	44,243
Nov.	68,135	10,436	57,699	8,005	1,048	772	564	425	4,950	7,902	7,805	943	1,790	623	92,526
Dec.	66,763	11,122	55,641	7,848	1,113	744	565	294	5,120	8,792	10,896	948	2,220	588	94,769
1929:															
Jan.	52,546	13,415	39,131	8,301	1,664	873	500*	461	5,640	8,067	11,076	395	2,134	642	78,884*
Feb.	47,926	12,103	35,823	6,943	1,117	955	500*	495	6,572	7,511	10.384	965	2,104	520	73,889*
Mar.	49,448	14,553	34,895	6,713	1,413	758	500*	499	5,515	6,620	10,629	741	2,332		
Apr.	49,816	11,414	38,402	4,676	727	747	500*	306	5,997	6,645	11,321	568	1,950		
May	43,960	15,593	28,367	4,850								650			

(1) Malayan net exports cannot be taken as production, since imported rubber is largely wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 115 tons in 1923, 1,117 in 1924, 3,618 in 1925, 3,263 in 1926, 2,439 in 1927 and 1,437 in 1928. (2) Ceylon Chamber of Commerce statistics until 1926; rubber exported as latex is not included— such shipments were equivalent to 18 tons in 1923, 93 tons 1924, 6 tons 1925, 20 tons in 1926, about ½ ton in 1927, and 1 ton in 1928. (3) Official statistics. (4) Imports into Singapore and Penang. (5) Exports from "Other D.E.I." are chiefly wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 2,342 tons in 1923, 1,008 tons 1924, 2,239 tons 1925, 44 tons in 1926, 84 tons in 1927, and 1,459 tons in 1928. (6) Calculated from official import statistics of principal consuming countries, viz., United States, United Kingdom, France, Germany, Belgium and Netherlands. This figure includes guayule rubber. (7) This total includes the third column for British Malaya, "Gross Exports minus Imports," and all the figures shown for the other territories. *Figure is provisional; final figure will be shown immediately it becomes available.

Net Imports of Crude Rubber into Principal Manufacturing Countries

(Long Tons)

	United States*	United Kingdom	France (h)	Germany	Canada (ac)	Japan (da)	Italy	Russia (ce)	Australia (ed)	Belgium (d)	Netherlands	Scandinavia (abcdf)	Spain (g)	Czechoslovakia (abcd)	World Total
1919	236,977	42,671	17,685	5,584	6,395	9,753	9,894	75	1,002	3,995	2,771	3,149	2,418	9	342,378
1920	248,762	56,844	13,885	11,890	11,746	5,297	6,123	62	1,815	3,840	5,510	2,292	2,008	567	370,641
1921	179,678	42,087	15,135	21,920	8,124	21,713	3,906	165	1,014	1,705	1,022	1,279	2,245	569	300,562
1922	296,267	11,724	24,352	27,546	9,207	16,934	6,430	2,498	2,643	172	-3,807	1,778	589	567	395,885
1923	300,372	12,700	27,392	18,519	13,277	15,372	8,489	2,986	1,649	2,184	792	2,528	630	1,128	408,018
1924	317,747	-11,550	30,446	22,727	14,299	19,571	8,764	2,346	3,124	2,688	-807	3,178	944	1,370	414,847
1925	381,815	4,061	32,956	33,987	19,683	11,117	11,412	7,088	4,757	2,930	875	3,149	1,155	1,558	516,493
1926	395,667	84,865	34,240	22,775	20,229	18,125	9.809	6.529	9 021	2.499	2.670	4.046	1.299	1.870	618.649
1927	398,483	60.249	34.271	38,892	26.405	20.521	11,381	12,018	9,490	6,482	636	4,224	2,055	2,672	627,789
1928	404,496	4,846	36,498	37,855	30,447	25,621	12,433	15,134	8,430	7,958	2,243	4,418	3,178	3,138	596,695
1927:															
April	44,627	7,875	2,310	2,393	1,509	2,181	781	1,972	762	448	58	230	177	218	65,541
May	33,736	2,896	2,006	3,380	2,519	1,084	918	887	694	626	-57	335	155	223	49,402
June	31,270	2,282	2,387	3,632	2,086	798	942	1,506	557	583	-17	243	164	183	46,616
July	25,719	1,116	2,384	2,899	2,104	1,505	1,007	415	900	429	66	227	177	236	49,184
August	31,001	3,463	2,795	3,119	2,013	1,970	1,274	386	650	604	-63	312	138	123	47,785
September	29,801	7,800	1,956	2,891	1,850	2,025	684	518	772	552	-33	451	155	272	49,694
October	27,671	5,888	3,479	4,202	1,790	1,966	1,021	1,075	908	465	156	401	153	363	49,538
November	36,123	1,687	3,661	4,209	1,916	1,575	1,167	1,312	836	749	298	474	246	317	54,570
December	28,082	309	4,696	3,108	2,302	2,710	1,462	1,453	1,242	784	-202	514	268	300	47,028
1928:															
Jan.	37,120	1,921	1,764	2,485	2,290	1,361	760	755	802	589	52	261	335	376	50,871
Feb.	30,926	3,143	2,526	2,984	2,553	1,248	437	783	616	599	98	307	296	297	46,813
Mar.	36,893	3,179	1,902	3,521	2,989	1,694	763	231	918	816	95	351	497	398	54,247
April	35,663	—2,280	2,204	2,719	1,938	2,334	1,114	1,820	832	575	280	339	304	159	48,001
May	28,660	—5,322	3,297	2,944	2,180	2,288	1,090	3,893	655	746	209	485	220	213	41,558
June	25,143	—3,031	3,597	2,968	2,186	2,102	984	4,111	348	743	133	346	251	182	40,063
July	28,170	—1,374	3,518	3,387	2,692	2,026	1,598	724	591	895	395	294	175	384	43,475
Aug.	28,827	48	3,527	2,744	2,447	1,868	875	632	707	519	316	359	58	94	43,021
Sept.	36,800	4,199	3,524	3,553	2,812	1,837	1,278	20	603	597	345	377	277	235	56,457
Oct.	41,667	—934	3,728	4,386	2,943	3,711	1,049	98	766	696	141	527	250	318	59,346
Nov.	33,846	—3,141	3,278	3,694	2,799	2,150	1,340	689	837	544	31	337	252	282	46,938
Dec.	40,781	8,438	3,633	2,470	2,618	3,002	1,145	1,378	755	639	148	435	263	200	65,905
1929:															
Jan.	53,922	11,951	5,645	4,711	3,759	3,776	1,481	956	1,061	749	218	638	179	525	89,571
Feb.	61,331	5,179	5,001	4,613	2,908	2,727	1,259	689	1,131	627	113	226	115	356	86,275
Mar.	46,391	9,068	4,409	4,586	4,961	2,630	1,515		725	931	316	354	80	409	
Apr.	52,447	8,295		5,351	3,177						144				

a—Including gutta percha. b—Including balata. c—Re-exports not deducted in monthly statistics. d—Including some scrap and reclaimed rubber. e—Official statistics of rubber imports by Soviet Russia. f—Including Norway, Sweden, Denmark and Finland. g—United Kingdom and French exports to Spain except in years prior to 1925. h—French imports have been reduced 12 per cent in order to eliminate imports of gutta percha and to reduce to basis of net weight. *United States imports of guayule are not included in this compilation; such imports amounted to 4,305 tons in 1926; to 5,010 tons in 1927; and to 3,076 in 1928.

Domestic Production of Miscellaneous Rubber Goods

	Rubber Proofed Fabrics Yards	Rubber Heels Pairs	Rubber Soles Pairs	Mechanical Goods Shipments Dollars
1924	25,020,000	186,279,000	(1)	$48,615,000
1925	23,988,000	206,970,000	16,211,620(2)	64,877,000
1926	29,328,000	183,312,000	12,253,000	76,789,000
1927	37,872,000	201,014,000	27,160,000	68,625,000
1928	41,179,000	235,170,000	37,645,000	69,114,000
1928:				
January	2,177,000	17,682,000	3,431,000	$5,630,000
February	2,575,000	19,181,000	3,628,000	5,838,000
March	2,853,000	22,583,000	3,747,000	6,675,000
April	2,416,000	18,575,000	2,928,000	5,406,000
May	2,744,000	21,597,000	3,519,000	6,274,000
June	2,953,000	18,763,000	3,321,000	6,126,000
July	3,447,000	17,620,000	3,168,000	5,157,000
August	4,613,000	21,289,000	3,461,000	6,306,000
September	4,966,000	21,451,000	2,725,000	5,393,000
October	5,914,000	21,932,000	2,297,000	5,837,000
November	4,173,000	18,686,000	2,649,000	5,201,000
December	2,348,000	15,811,000	2,771,000	5,271,000
1929:				
January	2,828,000	19,975,000	3,876,000	6,033,000
February	3,090,000	18,979,000	2,869,000	6,135,000
March				7,013,000

(1) Not available; (2) Last 9 months only.
Source: "Survey of Current of Business of the Department of Commerce."

United States Imports of Guayule Rubber and Related Gums

(All quantities in Long Tons)

	Guayule		Balata		Jelutong		Gutta Percha	
	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars
1919	1,430	760,690	727	937,038	8,332	2,213,964	2,900	1,068,698
1920	758	345,985	1,064	1,260,043	5,672	2,068,501	3,183	1,520,309
1921	58	26,945	814	1,077,859	1,745	351,893	985	333,564
1922	127	57,040	812	978,765	2,335	403,812	818	281,012
1923	1,155	542,227	700	898,524	4,565	853,308	912	375,167
1924	1,356	636,392	464	568,456	6,165	1,237,100	1,408	463,610
1925	3,781	1,803,448	517	574,750	6,749	1,642,531	1,603	629,284
1926	4,305	2,562,096	354	327,213	7,263	3,127,757	1,445	661,156
1927	5,018	2,674,957	582	447,246	7,785	2,448,657	1,494	728,172
1928:	3,075	1,765,685	731	430,855	7,552	2,540,059	1,597	777,128
Jan.	432	242,339	27	24,218	588	183,705	150	86,702
Feb.	489	281,295	33	32,165	403	142,621	312	215,085
Mar.	575	365,927	32	26,460	829	388,616	115	57,833
Apr.	512	312,131	47	32,924	592	174,970	68	27,627
May	452	233,414	—	——	679	226,064	100	42,762
June	424	220,081	9	6,799	293	91,152	28	12,374
July	191	100,342	123	46,747	373	113,295	81	27,344
Aug.	—	——	399	165,460	451	126,962	147	60,738
Sept.	—	——	60	38,198	2,028	713,736	125	56,768
Oct.	—	——	121	59,358	429	129,065	239	94,570
Nov.	—	——	59	41,119	472	140,116	88	35,409
Dec.	—	——	85	58,311	522	156,154	145	59,911
1929:								
Jan.	—	——	46	30,374	484	152,260	138	62,950
Feb.	—	——	82	70,209	823	255,594	40	19,806
Mar.	—	——	90	75,444	428	122,026	1	1,140
Apr.	83	38,241	163	93,240	1,086	315,621	1	1,086

Reclaimed Rubber in the United States

(All Quantities in Long Tons—100% Basis)

Year	Production	Consumption	% to Crude	Stocks*	Year	Production	Consumption	% to Crude	Stocks*
1919	81,366	73,535	36.3	.....	1924	80,079	76,072	22.4	.....
1920	86,395	75,297	38.4	.....	1925	132,930	137,105	35.6	13,203
1921	36,725	41,351	24.1	.....	1926	180,582	164,500	45.9	23,218
1922	57,834	54,458	19.3	.....	1927	189,144	178,471	47.6	24,980
1923	74,766	69,534	22.7	.....	1928	208,516	200,200	45.4	24,785
1927:									
Jan.	16,526	12,374	39.3	25,903	July	15,488	13,842	47.4	26,599
Feb.	15,860	14,424	47.8	27,291	Aug.	15,109	15,836	47.3	25,157
Mar.	16,788	13,528	37.4	27,124	Sept.	14,392	14,790	54.3	23,429
Apr.	14,483	16,677	46.5	25,712	Oct.	16,127	17,292	64.5	22,176
May	16,159	15,754	46.1	26,419	Nov.	15,477	14,876	55.5	21,728
June	16,652	15,547	46.0	25,811	Dec.	16,083	13,431	52.7	24,980
1928:									
Jan.	14,862	18,134	52.7	21,941	July	17,278	17,173	45.9	17,305
Feb.	15,291	16,808	49.9	20,848	Aug.	19,049	15,532	36.2	15,881
Mar.	17,069	18,619	52.2	19,558	Sept.	18,693	16,022	40.2	17,991
Apr.	15,393	17 355	52.9	19,283	Oct.	17,182	16,587	41.7	17,026
May	18,945	18,201	48.8	19,127	Nov.	18,245	16,547	44.2	22,399
June	18,781	16,328	43.4	18,709	Dec.	17,728	12,894	41.3	24,785
1929:									
Jan.	18,685	19,453	45.3	24,394	July				
Feb.	18,094	17,846	42.9	23,305	Aug.				
Mar.	19,984	18,782	41.9	22,076	Sept.				
Apr.	19,899	20,191	42.5	20,680	Oct.				
May	20,385	20,858	42.4	19,479	Nov.				
June					Dec.				

*Stocks on hand at the end of month or year. Exports of reclaimed rubber, not shown in this table, amounted to 8,540 tons in 1927 and 9,577 tons in 1928.

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